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AMERICAN JOURNAL of PHARMACY

SINCE 1825

A Record of the Progress of Pharmacy and the Allied Sciences

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THE AMERICAN JOURNAL OF PHARMACY

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EDITORIAL

WHAT IS AN ANTISEPTIC?

WE ARE informed that the Bureau of Chemistry at Washington has been, for some time, uproariously upheaved over the proper interpretation of the word "antiseptic."

Generally speaking, however, it is alleged that the Bureau has finally come to the conclusion, although no regulations have been issued, that an *antiseptic* substance must be capable, in its applied dilution, of destroying not only the arithmetical genius of the germ, that is, its ability to multiply by division, but it must also destroy the very germ itself.

In short, an antiseptic must be a germicide. If this finding of the Bureau has been properly interpreted to us—and we believe it has—it moves us to wonder how, in the face of the current acceptance of this word's meaning, the Bureau could possibly hold such an arbitrary notion.

Dictionaries, medical and otherwise; pharmacopœias and formularies, dispensatories and textbooks on bacteriology and hygiene, etc.; catalogues and price lists of pharmaceuticals and medicinals—all may be summoned in vast array to contradict the Bureau's attitude.

Literally, of course, one may excursion back to the root meanings of the word and find there a suggestion of fatalism—of utter germ destruction—of ferocity of action, but in the changing fashions of the vocabulary we believe that it has taken to itself a milder, gentler meaning.

Not for a moment does the word bring to us a sense of brutal killing—a relentless destruction of little one-celled beings—but rather a gentler, more persuasive sense of microgermic contraception.

Listen to what our little vest pocket dictionary states about the antiseptic—"anything that restrains the growth of germs"—nothing said there about phenol coefficients—or about the bacillus paratyphosus in active youth. No intimation there of a heartless, brutal killing.

And this is what the semi-portable Webster and the Medical Dorland record:

"Preventing decay or putrefaction" (Webster);

"Some of the chief antiseptics are (*among others*), boric acid, common salt, charcoal, sugar and vinegar" (Dorland).

But the Bureau claims that an antiseptic is a germicide. Imagine the death-throes of the flagellating typhoid germ in a dish of sugar water! Who ever heard of an anthrax germ putting on its resistant asbestos overcoat in a bath of salt and water?

Let the Pharmacopœia and the National Formulary change their terminology, for according to this harsher interpretation of *antiseptic*—official preparations so labelled must conform to the germicidal status. They must not just stay the growth of germs. They must actually exterminate them.

No longer will *Liquor Antisepticus N. F.* suffice for a title, for when that preparation, with all its alcohol, is diluted to halitotic strength, a little staphylococcus could use it for a swimming pool, and thoroughly enjoy its aromatic, eucalyptic bath.

Let the host of packaged medicines, mouth-washes, gargles and the like, self-ordained as antiseptics, pass away from the picture, for they are also under false colors.

Perhaps the new interpretation was especially designed for that particular class. One never knows.

A test similar to the Rideal-Walker test for germicidal value, is proposed by the Bureau, for the examination of the so-called antiseptic liquids. It is even more stringent than our present phenol-coefficient tests—and, as applied, we question that any of the commonly called antiseptics will measure up to its specifications.

Investigators have recently questioned the actual skin sterilizing efficiency of even such potent germicides as iodine and salts of mercury.

How in the world, then, it is possible to place bland, isotonic cleansers of mucous membranes on a basis of efficiency still superior to that of the corrosive germicides is quite beyond our understanding.

So we repeat our impression that a germicide is an antiseptic—but that an antiseptic is not necessarily a germicide.

Purged by purists—filigreed by foreigners—tormented by type-setters—slaughtered by slangsters—the staid old English vocabulary has suffered long and dumbly.

And now to add to its miseries along comes scientific Washington, with officious arbitrariness, defining well-established words to suit its own sweet purpose.

IVOR GRIFFITH.

ORIGINAL ARTICLES

THE ALKALOIDS OF LOBELIA INFLATA L.

By Henry Leffmann

THIS HUMBLE herb commonly known as "Indian tobacco," has been studied by many observers. It is widely scattered throughout the northern portion of North America, and bears several common names other than one given above. The acrid taste of the leaf and the distinct physiologic effects led to its extensive use in family practice and in the manufacture of proprietaries. Linnæus described it in 1753, giving it the name which it has since borne without synonym.

In a recent issue of the *Journal de Pharmacie et de Chimie* ([8], 1926, 4, 397) E. Cattelain gives a summary of the researches that have been made to determine the exact nature of the substances to which the physiologic effects are due. It is especially appropriate that an abstract of this should appear in the *AMERICAN JOURNAL OF PHARMACY*, for it was in this journal that the first data in regard to the plant were published. The first was in 1834 (Vol. 4, p. 300), by S. Colhoun, Professor of Materia Medica in Jefferson Medical College. He states that the active principle is brown and molasses-like, resembling in its general physical properties, nicotine as described by Berzelius. It has the same pungency as the plant and is fairly permanent in the air as it remained apparently unchanged when exposed for several months in an open cup. It is freely soluble in alcohol, but not in ether. In the latter respect it differs from nicotine. Colhoun described several crystalline compounds by union with acids. He obtained it at first by treating the leaves for several hours with hydrochloric acid, and evaporating the solution. Later he extracted the leaves with alcohol and obtained a better product.

Four years later, William Proctor, offered as his thesis to the Philadelphia College of Pharmacy, an extended dissertation on the

plant illustrated with an excellent lithograph showing the general aspect and the details of its flower. Proctor refers to the active properties of the plant and the likelihood of its usefulness in medicine. The earliest reference to such activity is about the year 1807, when Samuel Thomson, an empiric, was charged with murder on account of having used the plant. It passed into wider notice in consequence of the vogue of sect of empirics who founded a system of therapeutics on Thomson's Theories and were known as "Thomsonians." *Lobelia inflata* was considered by the Thomsonians as the best of their remedies. It was this vogue that induced Proctor to study it. His paper gives first a comprehensive description of the plant and its habits. The drawing from which a lithograph was made was the work of Dr. W. P. C. Barton. The entire plant possesses active properties, but the leaves and capsules are to be preferred. It should be gathered between the latter part of August and the beginning of October. At the time Proctor wrote a tincture was official in the U. S. P. (1830). (It is worth noting that an occasional publication "Bartonia," issued by the Philadelphia Botanical Club, is named in honor of Dr. Barton.)

Proctor describes a number of experiments made with a view of obtaining the active principle, and as a result obtained a liquid substance analogous to nicotine. He was unable to crystallize it but found it to form crystallizable salts with some acids. It was present in only very small amount in the plant. He assigned to the substance that he isolated the name "lobelina."

Cattelain's paper covers a large examination of the literature, by which it is seen that the plant has been the subject of close and extensive study. The view that its main alkaloid is liquid at ordinary temperatures, like nicotine and conine, was long maintained but from recent work it appears that this is a mistake. Wieland made in 1921 a research by which the most important alkaloid, "lobeline," and a second "lobelidine" were separated and identified. (*Ber.*, 54, 1788). Later in association with Schopf and Hensen (*Ann.*, 1925, 444, 40), three more crystallizable alkaloids were isolated, now known as follows:

Lobeline. Needles melting at from 130-131 degrees. Soluble in chloroform, in warm alcohol and benzene, difficultly soluble in water, ether and petroleum spirit. Levorotatory. A monacid base forming well crystallizable salts.

Lobelidine. Stellar prisms, melting about 106 degrees. Monacid base forming crystallizable salts.

Lobelanine. Needles in rosettes, melting about 99 degrees. Very soluble in alcohol, benzene, chloroform and acetone, but only slightly in ether and water. Optically inactive.

Lobelanidine. Large prisms melting at 150 degrees. Very soluble in benzene and acetone, less soluble in cold alcohol, difficultly soluble in ether and petroleum spirit. Optically inactive.

Isolobelanine. Fine crystals melting at 120-1 degrees. Soluble in many of the common solvents. Optically inactive.

The molecular structure of several of these alkaloids has been studied, but definite conclusions have not been reached. Alternative formulas are given showing, as might be expected, cyclic arrangements with nitrogen association.

It appears, therefore, from the researches of Wieland and his associates that the earlier workers did not obtain the alkaloids in any satisfactory form. This is to be expected when we remember the limited laboratory facilities then and the limited information concerning plant analysis.

THE DETERMINATION OF MERCURY IN MERCURIC SALICYLATE*

By Allen F. Murray

THE U. S. P. X states that mercuric salicylate should contain not less than 54 per cent., nor more than 59.5 per cent. mercury and gives the following assay:

"Digest about 0.5 Gm. of mercuric salicylate accurately weighed in a mixture of 15 cc. of sulphuric acid and 10 cc. of nitric acid contained in a long neck flask, in which a small funnel is inserted. Heat it upon a sand bath until the mixture is nearly colorless, then add another 10 cc. of nitric acid and heat until the mixture is decolorized. Cool the solution, dilute it with 150 cc. of distilled water, add 2 cc. of ferric ammonium sulphate T. S.

*An investigation submitted to the Faculty of the Philadelphia College of Pharmacy and Science as partial fulfillment of the requirements for the degree of Ph. C. and representing work conducted in the Analytical Chemistry Laboratory of the College.

and titrate with tenth normal potassium thiocyanate until a permanent yellowish red color is produced. Each cc. of tenth normal potassium thiocyanate corresponds to 0.01303 gram of mercury."

The above method was tried on six portions of a dried sample and required from 25 cc. to 28.2 cc. of potassium thiocyanate (0.00987) corresponding from 50.41 per cent. to 56.97 per cent. mercury.

The cause of variation of results is not definitely known but is probably due, either to volatilization of mercury during the digestion, or due to the potassium thiocyanate not reacting with the mercuric sulphate which is formed in the digestion; since it was noticed that if the potassium thiocyanate was added rapidly during the titration, mercuric thiocyanate was precipitated; while if added slowly the precipitate appeared only after allowing the titrated mixture to stand several hours.

This method has one other objection due to the fact that it requires several hours for digestion.

The determination of mercury as sulphide is probably the best method we have, and should be used whenever possible. It is not always applicable, however, because of the presence of nitric acid used in the decomposition of organic compounds or oxidation of mercurous salts. This fact explains the impossibility of checking results by precipitating the mercury as sulphide after the digestion with sulphuric and nitric acid.

Then the following method was also tried:

Weigh 0.5 Gm. of mercuric salicylate in a 150 cc. beaker and dissolve in 10 cc. of sodium hydroxide 10 per cent. by the aid of gentle heat. Add 10 cc. sodium sulphide 10 per cent. and boil. Remove from the flame and while still hot carefully add hydrochloric acid 10 per cent. until the solution is acid, then add 5 cc. more and boil for 10 minutes. Prepare a Gooch crucible by washing with distilled water, alcohol and ether and drying it at 110 deg. C. to constant weight. Collect the precipitate upon the Gooch crucible and wash with hot distilled water until free from chlorides, then with two 5 cc. portions of alcohol followed with 5 cc. of ether, and finally with three 5 cc. portions of carbon tetrachloride; dry at 110 deg. C. and weigh.

The following results were obtained:

<i>Grams HgS.</i>	<i>Per cent. Hg.</i>	<i>Grams HgS.</i>	<i>Per cent. Hg.</i>
1. 0.3540	61.04	5. 0.3778	65.14
2. 0.3586	61.83	6. 0.3521	59.71
3. 0.3696	63.73	7. 0.3642	62.60
4. 0.3886	67.01		

In removing the crucibles from the oven it was noticed that they possessed the characteristic odor of salicylic acid while they were still hot; the odor disappearing after cooling.

Using the same method but washing with three portions of alcohol of 10 cc. each the following results obtained:

<i>Grams HgS.</i>	<i>Per cent. Hg.</i>	<i>Grams HgS.</i>	<i>Per cent. Hg.</i>
1. 0.3594	61.97	2. 0.3652	62.97

These two precipitates were subsequently washed with two 5 cc. portions of alcohol and three 5 cc. portions of ether (the third ether washing tested with ferric chloride failed to give a reaction for salicylic acid) dried and reweighed.

<i>Grams HgS.</i>	<i>Per cent. Hg.</i>	<i>Grams HgS.</i>	<i>Per cent. Hg.</i>
1. 0.3521	60.71	2. 0.3536	61.07

If now the above precipitates were again washed with alcohol the washings with ferric chloride gave a reaction for salicylic acid.

The solubility of salicylic acid in solvents used was next tried by weighing 0.2 Gm. samples of the material in a beaker and trying solubility with chloroform, ether, alcohol and carbon tetrachloride. The chloroform dissolved approximately 75 per cent., the ether and alcohol dissolved it very rapidly, and the carbon tetrachloride very little. Finally a mixture of ether one part and alcohol one part was tried, this appeared to dissolve it more rapidly than either of the two by themselves.

From the previous experiments the following assay was devised:

Weigh 0.5 Gm. of mercuric salicylate in a 150 cc. beaker and dissolve in 10 cc. sodium hydroxide 10 per cent., with the aid of

gentle heat. Add 10 cc. of sodium sulphide 10 per cent. and boil. Remove from the flame and while still hot carefully add hydrochloric acid 10 per cent. until the solution is acid, then 5 cc. more.

Prepare a Gooch crucible by washing with distilled water, alcohol and ether and drying at 110 deg. C. to a constant weight. Filter the mixture while still hot and wash with hot distilled water until free from chlorides, then with two 5 cc. portions of alcohol, following with 5 cc. portions of a mixture of alcohol one part and ether one part until 5 cc. of the washings when diluted with 15 cc. of distilled water fail to give a reaction with one drop of ferric chloride T. S. Finally wash with three 5 cc. portions of carbon tetrachloride, dry at 110 deg. C. and weigh.

This method gave the following results:

	<i>Grams HgS.</i>	<i>Per cent. Hg.</i>		<i>Grams HgS.</i>	<i>Per cent. Hg.</i>
1.	0.3416	58.90	5.	0.3414	58.98
2.	0.3418	58.93	6.	0.3415	58.91
3.	0.3451	59.50	7.	0.3411	58.88
4.	0.3421	58.99			

Another sample from a different manufacturer examined by this method responded as follows:

	<i>Grams HgS.</i>	<i>Per cent. Hg.</i>		<i>Grams HgS.</i>	<i>Per cent. Hg.</i>
1.	0.3556	61.21	2.	0.3550	61.22

In conclusion it is plainly seen that the above method is very much shorter than the U. S. P. method; requiring at the most one-third the time. The washing with ether-alcohol mixture requiring more than the rest of the operations.

It is capable of being checked within comparatively narrow range; several milligrams at the most, and has the advantage that no liability of volatilization of mercury is incurred.

THE FAUGHT TEST FOR ACETONE*

By Harry J. Schaeffer

THE Faught test for acetone, being a comparatively new test, presents certain problems such as naturally arise from new developments. Tests involving the economical comparison with more common tests; its adaptability with possible interfering substances and its delicacy, were conducted with the sole purpose of bringing to the fore a hitherto remote test. From the clinicians' and technicians' standpoint the test has been avoided due to the almost prohibitive price of the ethylene-diamine hydrate, one of the reagents used in the test, so that the older and possibly more confirmed methods for the detection of acetone were resorted to, leaving the Faught Test with little advancement.

Directions for the original test (Essentials of Laboratory Diagnosis—F. A. Faught) are as follows: "Add one (1) grain of sodium nitro-prusside to five (5) c. c. of freshly distilled water. Add an equal volume of the unknown solution and mix thoroughly. Overlay a few drops of a 10 per cent. solution of ethylene-diamine hydrate. A pink or red zone at the point of contact denotes the presence of acetone. A faint white cloud does *not* denote acetone." The success of the application of this test depends upon the freshness of the sodium nitro-prusside solution.

In the application of this test the amounts of reagents used were varied from those specified and controls were conducted so that the maximum coloration for the least reagent used, was obtained, and from actual experiment it was found that it is not necessary to add an equal volume of the unknown to produce the coloration indicative of acetone, thereby leaving a more concentrated solution from which the color reaction ensues.

The following results were obtained by the reduction of the amount of ethylene-diamine hydrate originally specified and also, the use of 5 per cent. ethylene-diamine hydrate instead of 10 per cent. as

*An abstract of a thesis presented to the Faculty of the Philadelphia College of Pharmacy and Science as partial fulfillment of the requirements for the degree of Bachelor of Science, and representing an investigation conducted in Analytical Chemistry Laboratory of the College.

used in the original test. The results were tabulated after allowing the test to stand for one, three, twenty-four and forty-eight hours respectively:

<i>Ethylene diamine hydrate 5%</i>	<i>Acetone</i>	<i>1 hour.</i>	<i>3 hours</i>	<i>24 hours</i>	<i>48 hours</i>
1 drop	1:10	faint	red	dark red	(dark red)
1 drop	1:100	no test	faint	red	(red)
1 drop	1:1000	no test	no test	pink	(pink)
1 drop	1:5000	no test	no test	faint	pink
1 drop	1:10000	no test	no test	no test	no test

The use of two or three drops of the 5 per cent. ethylene-diamine hydrate does not hasten the reaction to an appreciable extent at this dilution (1:10,000) showing that if acetone is present only so much of the ethylene-diamine hydrate will enter into the reaction and that the addition of an excess will not hasten the reaction.

When the 10 per cent. solution of ethylene-diamine hydrate is used one (1) drop will indicate acetone to the dilution of 1:10,000; two drops will indicate approximately the same dilution and the addition of more ethylene-diamine hydrate drop by drop in direct proportion to more dilute (unknown) solutions verifies this test. Acetone to the dilution of 1:100,000 gave a positive test with four drops of 10 per cent. ethylene-diamine hydrate. This result was based upon a twenty-four hour test. Controls in which water, nitro-prusside solution and ethylene-diamine hydrate were treated respectively with 10 per cent. acetone and carried out simultaneously, gave negative results.

The maximum results were obtained when known dilutions of acetone were treated using one (1) drop of 85 per cent. ethylene-diamine hydrate and a solution of four (4) grains of sodium nitro-prusside in five (5) c. c. of freshly distilled water. These concentrated reagents were used only in the determination of very dilute solutions of acetone. In all probability these quantities would be better for the original test but due to the exorbitant cost of the ethylene-diamine hydrate the test would be a complete failure from an economical standpoint. Confirmed tests have indicated acetone to the dilution of 1:1,000,000, using these concentrated reagents. It must be remembered that owing to the volatility of acetone all of

these tests must be performed in the cold. Heat will necessarily destroy any trace of acetone due to this property and best results were obtained when the tube was kept cold constantly.

Interfering substances such as sugar (dextrose) and albumin sometimes found in urine do not interfere with this test unless, in cases, where the percentage of the interfering substance is too great. The test was applied to known solutions of acetone in admixture with either sugar or albumin or both, and in all cases the acetone was detected, to that degree to which it had been added.

The Faught Test was compared with tests more commonly used and the following results were obtained:

Test.	Delicacy.	Remarks.
Faught	1:100,000	can be used in the presence of dextrose and albumin, involves expensive reagent.
Legal's	1:10,000	reliable for general use, reagent inexpensive.
Kolthoff	1:2500	impractical, long process. Has little value other than theoretical.
Lieben's	1:1000	reliable to 1:1000, easily performed.
Dibenzal-acetone	1:500	of little value.

The summary of tests shows that for all practical purposes the Faught Test establishes itself as being the most efficient and delicate. It is of extreme value when small quantities of acetone are to be detected, but due to the commercial scarcity of ethylene-diamine hydrate and its extremely tedious process of preparation it is of little economic value. The Legal's Test remains as the cheapest and most generally reliable.

BIBLIOGRAPHY

- Faught Test: *Essentials of Laboratory Diagnosis*. F. A. Faught.
Kolthoff Test: *Pharm. Weekbl.*, LXII, 652.
Vanillin Test: *Bulletin of the Wagner Free Institute of Science of Philadelphia*, Vol. 1, No. 1, March, 1926.
Lieben's Test: *Practical Examination of Urine*. Tyson, page 112.

**THE
AMERICAN PHARMACY EXHIBIT
MEDICAL SCIENCE SECTION**

PALACE OF EDUCATION AND SOCIAL ECONOMY

SESQUI-CENTENNIAL INTERNATIONAL EXPOSITION

Philadelphia, June 1, to December 1, 1926

By Robert J. Ruth, P. D., Director

ABOUT three years ago when the earliest plans were being formulated relative to the participation of Medicine and the Allied Sciences at the Sesqui-Centennial International Exposition which opened June 1, 1926 in commemoration of the 150th anniversary of the Signing of the Declaration of Independence and the founding of this great nation, Pharmacy was invited to join Medicine and Dentistry, to comprise the three great professions which are instrumental in alleviating pain and suffering.

Dr. Wilmer Krusen, Director of the Department of Public Health of Philadelphia conferred with his good friend, Ambrose Hunsberger and asked him to attend the early conferences as the representative of Pharmacy.

Later a permanent organization was perfected and Ambrose Hunsberger and Dean Charles H. LaWall of the Philadelphia College of Pharmacy and Science were the representatives of Pharmacy on this general committee which had charge of all of the plans for the medical science exhibits.

The following committee was then formed to work out the Pharmacy exhibit.

**COMMITTEE ON PHARMACEUTICAL DISPLAY AT THE SESQUI-
CENTENNIAL EXHIBITION**

General Committee:

Charles H. LaWall, Chairman.

Joseph W. England, Secretary.

Robert J. Ruth, Director.

W. L. Cliffe, President, Philadelphia Branch of the American Pharmaceutical Association.

Charles T. Pickett, President, Philadelphia Association Retail Druggists.

C. Mahlon Kline, President, Philadelphia Exchange.

Dr. J. R. Minehart, Pharmacy Department, Temple University.
Dr. Wm. D. Robinson, Chairman, Committee Medical and Allied Sciences.
Ambrose Hunsberger, Executive Committee Medical and Allied Sciences.

Committee on Display:

Adley B. Nichols.
Edward J. Hughes.
Ralph Calvert.
R. R. Foran.
Ivor Griffith.
C. S. Cameron.
Jos. W. E. Harrison, Chairman.

It was decided upon then by the Committee on Pharmaceutical Display to arrange an exhibit which would be representative of American Pharmacy, and plans were made to divide the 600 square feet which had been allotted to Pharmacy out of the space devoted to the Medical Sciences, into three sections as follows:

1. Ancient Pharmacy and Pharmacy of the Colonial Period.
2. Modern Professional Pharmacy.
3. Pharmaceutical Education and Literature.

A letter was prepared and submitted to the leading officers of the American Pharmaceutical Association, the National Association of Retail Druggists, American Association of Colleges of Pharmacy and other leaders in Pharmacy, outlining the plans for their consideration and approval. Suggestions from these men were solicited and welcomed. All of those to whom the letters were sent concurred with the plans as outlined.

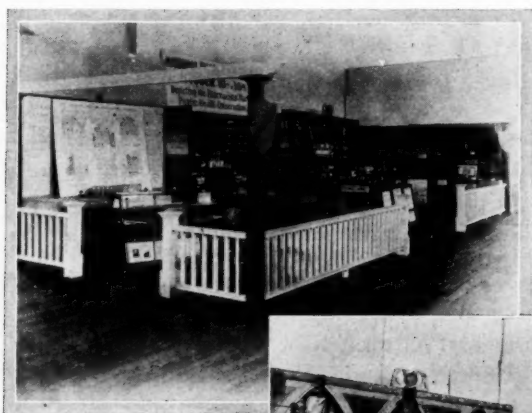
The floor space was allotted without charge, as the exhibits were entirely educational and without commercial aspect.

The problem of financing the exhibit was solved by the Board of Trustees of the Philadelphia College of Pharmacy and Science, who authorized an ample appropriation to properly finance the expense of preparing and conducting it and also that the services of the writer be made available to complete the plans and install and direct the exhibit with the aid of assistants.

The writer returned from a trip to the Pacific Coast on May 15th and took active charge.

It may be well at this point to explain that the entire space al-

lotted to Medicine and the Allied Sciences in the magnificent and imposing Palace of Education and Social Economy was divided into the following classifications: Medicine, Dentistry, Pharmacy, Nursing, County Medical Society, Milk, Occupational Diseases, Occupational Therapy, Hospitals, Tuberculosis, Preventive Medicine, Surgery, Eye, Hygiene and Sanitation. Pharmacy was given splendid consideration as to location and the amount of floor space allotted, and the writer wishes to take this opportunity to express his apprecia-



←
**GENERAL VIEW
OF PHARMACY
EXHIBIT**

→
**A PHARMACY
OF THE
COLONIAL
PERIOD**

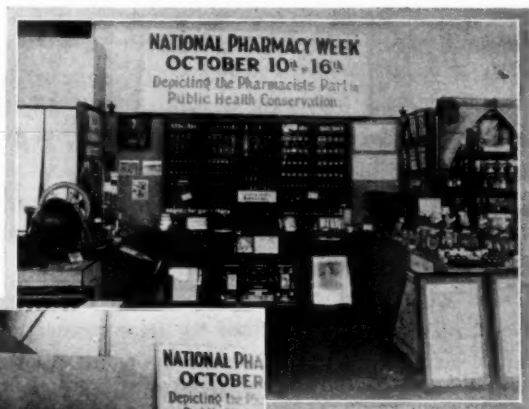


tion of the excellent coöperation which he received upon all occasions from the officers of the Sesqui-Centennial International Exposition, Director Wilson of the Palace of Education and Social Economy, Dr. Krusen, Director of the Department of Public Health, Mr. John C. Eckel, in charge of the Medical Exhibits and all others who participated in the installation and success of the exhibition.

The writer also wishes to publicly thank the following firms who coöperated and who furnished equipment without charge for the

American Pharmacy Exhibit: Bernheim & Sons, Inc., complete modern prescription case; W. B. McLean Mfg. Co., glass display cases; F. J. Stokes Machine Co., Eureka tablet machine; H. K. Mulford Co., biological and gland products; Harvey-Pittenger Co., gland products; J. B. Lippincott Company, pharmaceutical books; The Chemical Catalog Co., Inc., pharmaceutical books; Lea & Febiger, pharmaceutical books; and Norman C. Hulme, architect, for graphic sketch depicting the evolution of American Pharmaceutical Education.

→
**A MODERN
PHARMACY**



←
**THE EVOLUTION OF
PHARMACEUTICAL
LITERATURE**

The following is a description of the Pharmacy Exhibit.

In the section on Antique Pharmacy and Pharmacy of the Colonial Period, the original store fixtures from the old Glentworth Store of the period of 1812 were transported from the Museum at the Philadelphia College of Pharmacy and Science and used for a background. There can be seen the shelves, laden with huge old-time flag bottles filled with magnesia, etc., other quaint and large containers holding Daffy's Elixir or labeled "Acet. Arom."; and the

quaint porcelain ointment pots with handles upon which are the embossed heads of unknown men, which were brought from England in those days. They bear such labels as "U. Basil F.," "Poke Oint." and "U. Mercur. F.," which are familiar to us even now after 114 years. Above the prescription case can be seen the owl—the Bird of Wisdom, Symbol of the Goddess Athene—commonly used in the apothecary shops throughout the civilized world in those days. At the left at the top of the fixtures can also be seen the bell attached to a spring which was ingeniously connected up with the front door so that it would ring each time the door would open and would thereby summon the apothecary. At the front of the prescription case is a massive counter with Corinthian columns reaching up at each corner from the floor and atop of which is a thick marble slab weighing more than two hundred pounds. A wooden display case sets upon this slab and upon it can be seen several implements and also the brass plate sign bearing the inscription, "Dr. Glentworth." There is also a bronze mortar which was cast in Switzerland in the fifteenth century and which rings as beautifully as any cathedral chime when struck with the pestle. It is so heavy that it is no small task for two men to lift it from the floor to the counter. At the left of the counter, a large copper still stands upon the floor, while at the right can be seen the first machine manufactured to mill drugs. In front of the counter stands the old-fashioned show bottles and two old porcelain filters which were brought from England.

On the wall on the left, hangs the portrait of Charles Marshall, 1744-1824, the first president of the Philadelphia College of Pharmacy, which was the first College of Pharmacy in the New World.

On the wall at the right of the section hang the oil portraits of Henry Troth, 1794-1842, and Peter K. Lehman, both founders of the Philadelphia College of Pharmacy; Dr. George B. Wood, 1797-1879, the famous physician and pharmacist who was internationally known and who was Professor of Chemistry at the Philadelphia College of Pharmacy; Susan Hayhurst, 1820-1908, the first woman in America to graduate from a College of Pharmacy; and Professor William Proctor, Jr., 1817-1874 the "Father of American Pharmacy," and who was professor of pharmacy and otherwise connected with the Philadelphia College of Pharmacy from 1846 until the time of his death.

Below the portraits there are old diplomas, one from the Philadelphia College of Pharmacy dated 1826; indentures and ancient doc-

uments pertaining to pharmacy, the originals of which are in the library of the Philadelphia College of Pharmacy and Science; an excellent picture of Sir Humphrey Davy in his laboratory, with Michael Faraday working as junior apprentice; the "Oath of Hippocrates" and the "Oath and Prayer of Maimonides." On the display benches can be seen several very old and massive balances; a very old, decorative show urn; a large wooden mortar and pestle, hand carved by the Aztec Indians and very ancient; a stone mortar and pestle of volcanic origin which was used by the early Mexicans to grind "Chile" or red pepper; a bronze mortar cast in Amsterdam in 1733; a large wooden mortar used during the Civil War at the hospital at Bungtown (now Wyndmoor); an iron mortar cast in 1726; two beautiful bronze mortars, very decorative, both cast in Switzerland, one in the thirteenth century and the other in the fifteenth century; a large bottle of Calves' Teats, preserved in alcohol, and which were used for nipples on nursing bottles before the discovery and practical application of rubber; a most beautiful porcelain owl artistic in coloring, which was made in Switzerland in 1654, and really one of the rarest gems in the exhibit; an iron mortar cast in 1784; a bronze mortar cast in 1689; another cast in 1752 and the bronze mortar used by Professor Robert Bridges.

Below the display benches can be seen a picture of the famous Henry C. Blair Pharmacy in 1835, and a collection of the surgical instruments used more than a century ago by Dr. Glentworth.

All of the rare antiques used in this exhibit came from the Museum of the Philadelphia College of Pharmacy and Science, and many of them were collected by Mr. George B. Evans, a graduate of the college, during his travels abroad, and presented to the college.

The section on Modern Professional Pharmacy, was subdivided into seven sections as follows: Prescription Pharmacy and Dispensing, Manufacturing Pharmacy, Chemical Testing, Drug Evaluation, Biologic Standardization, Clinical Testing and Glandular Products.

In the center background can be seen a modern prescription case, fully equipped with dispensing bottles containing fluidextracts, tinctures, liquors, solutions, syrups, chemicals, etc. Upon the working board there is a display of finished prescription products such as emulsions, pills, tablets, capsules, powders, cachets, suppositories, etc., and also two percolators packed with drugs and in place on ring stands; Wedgwood and glass mortars and pestles; funnels; flasks, infusion pot, pycnometer, torsion balance, graduates, evaporating

dishes, pill tiles, spatulas, pill machine, suppository moulds, beakers, graduated cylinders and flasks; and similar apparatus so familiar to the pharmacist in his prescription practice.

At the base of the prescription case can be seen a large case containing an exhibit of finished biological products; a picture of a patient suffering with virulent smallpox and accompanied by a warning against neglect of inoculation for immunization; also a picture of Edward Jenner, 1749-1823, who in 1789 introduced artificial immunity against smallpox. At the left of the prescription case on the wall, can be seen the picture of the late Professor Joseph Price Remington, who was Dean of the Philadelphia College of Pharmacy and loved by pharmacists the world over.

At the left in the foreground can be seen the exhibit on Manufacturing Pharmacy. Only an attempt is made to show such apparatus as would be practical in the average pharmacy. The exhibit contains a pill and tablet coating machine, power driven; a Eureka tablet machine, hand driven; a large percolator, a large copper measure and funnel, a large suppository machine, a hand drug mill, an emulsifying machine, a steam kettle and a powder sifter.

Next on the left is the exhibit on Chemical Testing and it displays the following set-up apparatus: Liebig condenser, Soxhlet extractor, apparatus for manufacturing ammonia or hydrochloric acid, burette for volumetric analysis, apparatus for gravimetric analysis, nitrometer for gasometric analysis, separatory funnel, and miscellaneous pieces of chemical apparatus.

In the section of the left is seen the exhibit on Drug Evaluation and an attempt is made to show with apparatus and specimens the methods for the microscopic and macroscopic examination of drugs. This exhibit contains a compound microscope; and apparatus and specimens portraying the following tests for identification: Red Tar Distillate yielded upon heating cinchona bark; microsublimation of caffeine from tea; Lignin in wood (red with phloroglucin and hydrochloric acid), the reaction shown upon a block of wood and a piece of newspaper containing wood fibre; cantharidin from Spanish flies (sublimation flask); emodin in plant tissue colored red with potassium hydrate, shown on rhubarb and cascara bark; iodine reacting blue with starch shown upon starched linen and starch paste; tannin in plant tissue (rose petals—black; maple bark and cramp bark green with ferric chloride). Upon the walls are seen microphotographs and views taken of the Botanical Gardens of the Philadelphia College

of Pharmacy and Science at Glenolden, Pa., showing medicinal plant cultivation.

In the foreground at the right is the exhibit on Glandular Products. In display jars are exhibited the whole glands as follows: Thyroid, parathyroid, ovary, pituitary, suprarenal, pancreas, and the split ovary to show the corpus luteum. There is also a very comprehensive anatomical chart showing where the various body glands are located. In tall glass cylinders the manufacture of Insulin is shown step by step from the acid alcohol extraction from minced pancreas, the precipitation by ammonium sulphite, further precipitation by the Iso-Electric precipitation method, down to the final sterilized solution. There is also a display of desiccated glandular products.

Next on the right is the exhibit on Clinical Testing. A microscope, stains and reagents for bacteria; culture media, containers, culture tubes and other supplies and apparatus used by the bacteriologist are comprehensively displayed.

In the last section on the right is located the exhibit on Biologic Standardization. Here a Kymograph, manometer, inductorium, syringes for injecting animals, heart and muscle levers, flasks and pipettes are shown. There is also a frog pond. The tracing on the Kymograph shows the result of epinephrine on the blood pressure of a dog. The standards as supplied by the U. S. Bureau of Chemistry, Department of Agriculture, are also displayed. By a series of six charts upon the wall the one hour frog method for the standardization of digitalis is graphically portrayed. This exhibit like all the others in the exhibition was made comprehensive by charts and explanatory signs and it gave a very good conception of the bio-chemical laboratory and biological assays.

In the section on Education and Literature a large architect's drawing shows historical Carpenter's Hall where on February 23, 1821, the first College of Pharmacy in America was founded. It then shows the college buildings occupied from 1821-39, 1839-68; 1868-92, and 1892 to the present date. This is, of course, the evolution of the Philadelphia College of Pharmacy and Science from its inception. However there is no mention made of the name of the institution and it is meant to illustrate the evolution of pharmaceutical education in the United States, as indeed all colleges of pharmacy have enjoyed a steady substantial growth both physically and mentally. At the base of this drawing is an architect's model of the new college which will be built by the Philadelphia College of Phar-

macy and Science, and for which the cornerstone will be laid on Founder's Day, February 23, 1927. (This also is unnamed.) At the left of the drawing is a chart which tells of the courses of instruction given in the colleges of pharmacy in the United States, and at the right is another chart upon which are arranged alphabetically by states, the names of all of the colleges which hold membership in the American Association of Colleges of Pharmacy.

Below is the certificate of honorary membership which was presented to Professor Joseph Price Remington by the Pharmaceutical Society of Great Britain in 1894. In this section there is a class room chair which lends atmosphere and permits one to rest or take notes. On the wall there are some old diplomas, one issued by the Philadelphia College of Pharmacy in 1824.

There are two glass showcases in this section which contain the Exhibit on Literature. In the one there is a complete series showing the evolution of the United States Pharmacopœia from the first edition in 1820 up to the Tenth Decennial Revision which is now official. The evolution of the National Formulary is also shown from the first edition in 1888 to the Fifth Edition now official. So is the United States Dispensatory shown from the first edition in 1833 to the Twenty-first Edition which has just been published. There are also the Chinese and Spanish Editions of the United States Pharmacopœia and a volume on the "Life of Dr. Lyman Spalding" who was the originator of the United States Pharmacopœia. There are also bound volumes of Proceedings and Journals of the American Pharmaceutical Association and Year Books all of various years dating from its origin in 1853.

The other showcase contains herbals, bearing the dates of publication of 1591, 1771 and 1786, "The First Century of the Philadelphia College of Pharmacy," and issues of the AMERICAN JOURNAL OF PHARMACY, from 1826 to the present year. The AMERICAN JOURNAL OF PHARMACY, devoted to scientific subjects, has been published continually since December, 1825, and is the oldest Journal of Pharmacy in America. There are also the volumes of the Popular Science Talks, given throughout the year by the different members of the Faculty of the Philadelphia College of Pharmacy and Science, who afterwards broadcast them from Radio Station WFI, and each year the talks are published in an annual volume.

An exhibit of several different textbooks on each of the subjects taught in Colleges of Pharmacy is also shown, such as Remington's,

Army's and Caspari's on Pharmacy; books on chemistry, materia medica, toxicology, physiology, physics, bacteriology, botany and pharmacognosy, etc.; a catalogue of the Historical Exhibit in the hall of the Horticultural Society, held during the convention of the American Pharmaceutical Association September 8-13, 1902, upon the occasion of the fiftieth anniversary of the American Pharmaceutical Association, was also exhibited, as was a bill for drugs supplied to General Washington's Continental Army during the Revolutionary War.

The writer feels justified in saying that the American Pharmacy Exhibit is an unqualified success from every standpoint. Dr. Krusen, the chairman of the Committee on Medical Science Exhibits was greatly pleased with the showing which Pharmacy made and he wrote of it in a most complimentary manner in a story which he prepared for a leading Philadelphia newspaper in addition to commending the Committee on Pharmaceutical Display.

All of the Philadelphia newspapers devoted much space to the Pharmacy exhibit while the publicity department of the Sesqui-Centennial International Exposition had it photographed several times by their official photographers and had a story written about it by a feature story writer which was syndicated to 17,000 newspapers.

It is impossible to say just how many hundreds of thousands of people have visited the American Pharmacy Exhibit, but it has always attracted much attention and was oft times crowded.

It might be interesting to note that except for the books which were in glass showcases and amply protected, everything else in the exhibit was left open to the mercy and honesty of the public and that the only articles which have been missed are a pycnometer and a small simple microscope, the possibilities of which probably appealed to some small boy. Signs reading "Please do not handle" proved quite effective.

A month before the event of National Pharmacy Week, a large sign was placed above the center of the exhibit, and bore the following message: "National Pharmacy Week—October 10 to 16—Depicting the Pharmacists' Part in Public Health Conservation."

Many hundreds of pharmacists visited the exhibit during the conventions of the American Pharmaceutical Association and the National Association of Retail Druggists, held in Philadelphia in September. During the American Pharmaceutical Association Convention, Saturday was designated "Official American Pharmaceutical

Association Day" at the Sesqui, and a special trip was made to the exhibit, at which time the Director gave a short lecture, dwelling upon the subjects of the exhibit, and a group photograph was taken in front of the Palace of Education and Social Economy.

It is sincerely believed that the American Pharmacy Exhibit at the Sesqui did much to supplement the accomplishments of National Pharmacy Week along the lines of public information to the benefit of the pharmacists' status.

ABSTRACTED AND REPRINTED ARTICLES

SOME METHODS OF BIOLOGICAL ASSAY*†

By J. H. Burn, M. A., M. D.

Director of the Pharmacological Laboratories, Pharmaceutical Society of Great Britain

IT MAY perhaps be useful in beginning this lecture if I make clear the need for biological assay by giving the variation in the strength of different preparations which I have encountered during the last nine months.

Of tinctures of digitalis, the strongest tested was $2\frac{1}{4}$ times as strong as the weakest. That is to say, the variation was 225 per cent.

Of liquid extracts of ergot prepared by extraction with acid alcohol, the strongest was nine times as strong as the weakest. That was a variation of 900 per cent.

Of pituitary extracts, the strongest was ten times as strong as the weakest; a variation of 1000 per cent.

Of all these three preparations the majority of samples were reasonably uniform in strength, and these variations were confined to occasional instances. Nevertheless, it is to be remembered that samples at present only come from those manufacturers most anxious to sell products of uniform potency, so that it is likely that the variations would be still more striking if there were a compulsory examination of all preparations.

*Lecture delivered before an Evening Meeting, in London, on November 9, 1926, of the Pharmaceutical Society of Great Britain.

†Reprinted from *The Pharmaceutical Journal and Pharmacist*.

I wish now to turn to the general question of physiological testing. It has been the custom for a good many years for some manufacturing houses to label their products "Physiologically tested." Supposing that instead of the magic word "physiologically" the more familiar word "chemically" were substituted, I do not think that many of you would be greatly impressed by this formula. You would rightly want to know what the result of the chemical test was. In my opinion, the words "physiologically tested" should never be used without a quantitative statement of the result of the test. I will emphasise my meaning by considering the testing of digitalis as it is still carried out by several workers.

When used in heart disease digitalis has an effect on the muscle of the heart, so that the rate of beat is slowed and probably the force of the beat is increased. This action of digitalis is the first stage of a poisoning of the heart muscle. The beneficial effect is only exerted while the concentration of digitalis in the blood does not exceed a certain limit. Beyond this limit the opposite effect is seen; the heart begins to beat very rapidly, the fibres composing it lose their power of relaxing, and finally the heart stops in a tightly contracted condition.

Now digitalis and other substances such as strophanthus and squill have an effect on the heart of a frog similar to that exerted on the heart of a cat, rabbit, or dog. Houghton proposed in 1895 that the strength of digitalis preparations should be determined by finding the smallest dose of each preparation which would cause the heart of a frog to stop beating in a tightly contracted condition. The digitalis was injected into the lymph sac, which is the space between the frog's skin and the muscle of the body wall.

This method is still used today, and often only eight or twelve frogs are used for the test. These are injected with a series of diminishing doses, two frogs receiving each dose, and an attempt is made to determine the smallest dose which kills a frog. Now it has long been known that frogs vary from one day to another, but Dr. Trevan is the first worker who has made a systematic study of the variations among frogs themselves on any one day. He has shown that the mortality follows an S-shaped curve (*The Pharmaceutical Journal*, October 9, p. 440), and that while some frogs die with a small dose of a given preparation, others require three times as much. Consequently the method of testing digitalis, in which eight or twelve frogs are used, cannot give a quantitative measure, and Dr. Trevan states that for an assay having a standard deviation of 6 per cent. no fewer

than eighty frogs are necessary. Yet it is on tests such as that in which twelve frogs are used that the manufacturer feels justified in labeling his products "physiologically tested." At the present time international standards are available for digitalis and pituitary extract, and certainly in the case of these two substances a manufacturer should not be content without a quantitative statement of the strength of his products in terms of these standards.

The Cat Method for Digitalis

A second method for determining digitalis is that originally introduced by Hatcher and Brody, in which the cat is used. The method has been much improved by de Lind van Wijngaarden, working in the laboratory of Professor Magnus of Utrecht, and the following is the description of assay of a tincture of digitalis as we carry it out here.

A portion of the tincture is diluted twenty times with a solution of NaCl (0.9 per cent.) in tap water. A cat is anæsthetised with ether, carefully weighed and secured on the operating table in the fully anæsthetised state. A tube is put into the trachea (or wind pipe) so that its lungs can be artificially inflated with a mixture of air and ether, a tube is put into an artery so that the pressure of blood in the artery can be recorded with the aid of a manometer, and a third tube is put into a vein in the leg by which the digitalis enters the cat's circulation from a burette. A device is used to ensure that the entry of the digitalis proceeds at a constant rate. At a certain point the digitalis produces stoppage of the heart, and the blood pressure falls sharply at zero. When the heart stops the cat is dead, and after an examination of the heart and lungs it is discarded. The amount of digitalis which has entered the cat is then observed, and a calculation is made to find out the amount per kilogram of the cat's weight. This determination is made on each of five cats. The following figures were obtained with a sample submitted recently to these laboratories:

Tincture (diluted twenty times) require to produce Cessation
of Heart in Contraction.

Cat 1.....	9.62 cc. per kilogram body weight.
Cat 2.....	15.08 cc. per kilogram body weight.
Cat 3.....	10.91 cc. per kilogram body weight.
Cat 4.....	10.40 cc. per kilogram body weight.
Cat 5.....	9.35 cc. per kilogram body weight.
Mean, 11.07 cc. per kilogram.	

The Geneva Conference on Biological Assay has provided a standard sample of digitalis leaves. A tincture prepared from these leaves gives a mean value (twenty times diluted) of 14.74 cc. per kilogram. Hence 11.07 cc. of sample under test contains the activity of 14.74 cc. of the standard tincture, and the sample has 133 per cent. of the activity of the standard.

The Assay of Ergot

I propose now to turn from the assay of digitalis to that of ergot, and, in the first place, I wish to emphasise again the unsatisfactory position of ergot in the British Pharmacopœia at the present time. These laboratories do not accept samples of B. P. extracts, because the test which we apply to ergot is a test for the specific alkaloid of ergot, which is almost entirely absent from B. P. extracts. It is, therefore, a foregone conclusion that a B. P. extract submitted to the test I shall describe will be found to be without activity. Nevertheless, although this is fairly widely known, some manufacturers appear to be at a loss to understand how it has come about that samples of Ext. Ergotæ Liq., B. P., which have been examined by a biological test, have been described as being highly active. The answer is that it depends on the biological test applied. The putrefactive products, histamine and tyramine, do, of course, occur in B. P. extracts, and they have activity which can easily be demonstrated by a biological test. These products can be obtained from any putrefying protein, and it is unnecessary to use so expensive a material as ergot to supply them. It cannot be supposed that the traditional therapeutic value of ergot is to be attributed to the accidental occurrence in it of substances present in mouldy cheese or in fish that is not fresh. It is, therefore, a matter for regret that there should still be individuals carrying out pharmacological tests who are willing to state that an extract of ergot made according to the B. P. possesses a high degree of activity. The statement is misleading to the manufacturer and to the medical practitioner.

I was speaking some days ago on this subject to the chemist of a well-known manufacturing house, and I asked him what preparation of ergot they supplied when a purchaser who asked for a liquid extract of ergot did not specify the B. P. preparation. He told me, to my surprise, that his firm in such a case supplied the B. P. preparation. It seems to me that in all cases where the manufacture and

sale of the B. P. preparation can legally be avoided, it should be avoided. This is an excellent instance of a situation in which the pharmacist can use his professional knowledge to the benefit of the patients whom the doctor wishes to treat.

In extracts of ergot made, as is the U. S. P. extract, with an acid alcoholic menstruum, there occurs the active principle or ergot itself. It was isolated first by Barger and Carr as ergotoxin, and later by Stoll as ergotamine. These two substances are identical pharmacologically, but ergotamine as tartrate is water-soluble, and in consequence is more easily handled than ergotoxine. The most characteristic property of this specific alkaloid, which is entirely peculiar to it, is the power of paralysing the stimulant action of adrenalin on certain body tissues. Clark has devised, a method of using this property for the assay of ergot, which, in my opinion, must take its place in the first rank of methods of biological assay.

It is an excellent example of a method in which an isolated tissue is used instead of the whole animal. The principle is as follows: The uterus is removed from a freshly killed rabbit, placed in cotton-wool soaked in Ringer's solution, and kept on ice. A strip of the uterus is cut off, about 1 cm. long, divided into two parts, and each part is suspended vertically in a suitable bath. The suspension is so arranged that when the muscle contracts, a record is obtained on a smoked surface showing the extent of the contraction. The addition of a small concentration of adrenalin (one part in two millions) to the bath will cause the muscle to contract to a fraction of its length. The muscle will again relax if the adrenalin be removed, and it is found that the repetition of the addition of the adrenalin produces the same extent of contraction, no matter how often repeated. If now an extract of ergot containing the specific alkaloid be added in sufficient concentration to the bath, it is found that after a short time the addition of adrenalin no longer causes contraction. The abolition of the stimulating effect of the adrenalin depends on the concentration of the specific alkaloid of ergot present, and on the time during which it acts.

In practice a solution of the specific alkaloid is added to the bath containing one-half strip of muscle, and a dilution of the ergot extract to be assayed is added to the other half strip. The following is an example of the final evidence provided by an assay carried out in the way:

1. Test contains less than 0.2 per cent. alkaloid.
2. Test contains less than 0.15 per cent. alkaloid.
3. Test contains more than 0.12 per cent. alkaloid.
4. Test contains 0.133 per cent.

You will notice that in this case the final percentage of the specific alkaloid in the extract is determined within the limits of about ± 10 per cent., but it is to be remembered that this is a new method with which probably not more than a few people are familiar, and of which the usual limits of accuracy are not yet known. It is of considerable importance that these limits should be determined, and the necessary work is now being done in these laboratories.

I wish to turn now from the older galenicals to a consideration of the new field of gland extracts. This field is extending rapidly, and its extensions will undoubtedly be of the greatest importance for medicine, and therefore for the pharmacist.

The testing of pituitary extract is a process in some respects resembling the ergot test I have just described; similar apparatus is required, and the object on which the test is performed is also the uterus removed from the body of a freshly killed guinea-pig. I do not propose to consider it in detail. Of more interest is the recently introduced test for ovarian extract which we owe to Allen and Doisy.

The Testing of Ovarian Extract

In the first place, it is necessary to consider briefly some of the changes which go on in the reproductive organs of the female rat or mouse. If a dead rat be dissected it is found that the passage from the vagina goes forward inside the animal for a short distance and then divides into two. Each of the two passages with its surrounding tube of muscle forms what is called a horn of the uterus. It is inside this tube that the foetus develops until it becomes the young rat ready to be born. At the forward end of each horn of the uterus is the ovary. While the animal is alive a continuous series of changes is going on in this apparatus. The horns of the uterus undergo expansion to three or four times their previous size, and then again contract. With the expansion is a corresponding increase in the supply of blood. It is when the uterine horns are at the height of expansion that the female will mate with the male, so that fertilisation of an egg from the ovary ensues, and the fertilised egg grows inside the

horn of the uterus into a young rat. Providing the female is not mated with a male the cycle of changes goes on continuously, and in a mouse or rat the cycle occupies five days. The period in which the tissues are contracted in size and relatively bloodless occupies three days, the fourth shows the early signs of the onset of heat, and the fifth is the day of heat, which is termed œstrus. Now it is clearly impossible to observe the changes in the uterus without killing the animal, but two American workers, Allen and Doisy, have shown that the stages of the cycle can be readily detected if a smear be made from the vagina. The cells which line the inner wall of the vagina during the first three days are cells having nuclei inside them, and amongst them are large numbers of wandering cells, the polymorphonuclear leucocytes of the blood. On the other hand, during œstrus or heat, the cells of the vaginal wall are non-nucleated squamous epithelial cells in layers so thick and compact that no leucocytes pass through them. If a small blunt instrument be put inside the vagina, a few of the surface cells stick to it; these may be transferred to an ordinary microscope slide, and, after they are dry, stained with methylene blue. An examination with the microscope will then tell at once whether the mouse is in the œstrous condition or not.

Now the cycle of changes depends for its occurrence on the ovary. If the ovaries be removed the cycle stops altogether, so that if smears are taken from mice from which the ovaries have been removed, microscopic examination shows the presence of leucocytes amongst a few nucleated cells day after day without intermission. Allen and Doisy have shown that an extract of ovarian tissue, prepared by the use of alcohol and subsequently purified, will, when injected, bring on the condition of heat or œstrus, in mice or rats which have no ovaries of their own. It is therefore possible to test extracts prepared from ovarian tissue by injecting them into animals in this condition, and determining from vaginal smears whether the production of œstrus follows the injection. The method offers little in the way of a quantitative estimate. It is, however, possible to determine the least amount of extract which will produce œstrus in a mouse or in a rat, and so discover how much of any extract constitutes a mouse or a rat unit.

The therapeutic value of ovarian extract still remains to be determined. There is, however, little doubt that in the near future important developments may be expected in this direction.

The Pharmacist and Gland Extracts

Already the gland extracts which have a well-marked physiological and therapeutic action are sufficiently numerous to constitute an important addition to therapeutic agents in general. All of these extracts are potent, and must take rank with the most powerful plant extracts. Surely the pharmaceutical student should spend a considerable time in learning the characteristics of the tissues from which these extracts come and the methods by which active extracts are prepared. The time so spent ought to bear a significant relation to the time spent in learning the characteristics and methods of extracting medicinal plants. To introduce this change involves no departure from the subjects which are at present taught; it involves nothing more than bringing pharmacognosy and pharmaceutical chemistry up to date.

A strong argument in favour of such training is that the number of people who are familiar with the work of gland extracts is very small. This country is fortunate in having a few chemists who have been singularly successful in dealing with gland extracts. But in Germany, where there are many able men in the chemistry of dyestuffs, for example, there is almost no one able to deal with gland extracts. Even today the preparation of pituitary extract and insulin in Germany compares most unfavourably with the preparation in this country. But for our good fortune in having a few able men who without special training have taught themselves a successful technique, we might have been in the same position. We cannot afford as a nation to leave this matter to chance much longer, and it seems most suitable that schools of pharmacy, should take steps to give courses of instruction in this field. In this connection I ought to mention the allied field of chemotherapy. The preparation and investigation of organic chemical compounds for their therapeutic effect is just as important as that of gland extracts. Here the Germans are more alert. A few years ago they successfully produced the substance known as Bayer 205, which appears to be much the most potent remedy for sleeping sickness, and this year, by the introduction of plasmochin, they are reputed to have made an important advance in the treatment of malaria. We have some research on these lines going on in this country, but though it is most ably conducted, in amount it is very small. Now this work is essentially research in pharmaceutical chemistry, and comes properly in the province of the pharmacist.

So far as teaching is concerned, it should be remembered that very soon the salvarsan patents expire, and I should think that senior pharmaceutical students might very profitably be taught the manufacture of this substance in connection with the control of its activity by pharmacological tests.

Reverting to the question of gland extracts, there are further problems for the pharmacist to face, which training on the lines suggested would not altogether solve.

The extracts which are sold at the present time may be divided, according to present scientific knowledge, in the following way:

<i>Active when given by mouth</i>	<i>Active when injected</i>	<i>Inactive in all circum- stances</i>
Thyroid	Adrenalin	Testicular extract
Parathyroid Ext.?	Pituitary extract	Pituitary extract
	(posterior lobe)	(anterior lobe)
	Insulin	Extract of tonsil
	Parathyroid Ext.?	Extract of thymus
	Ovarian extract	Extract of mammary gland.
	(oestrus producing)	
	Ext. of corpus luteum?	Many others

The chief confusion exists with reference to those extracts which are active only when injected, for a great many of these are manufactured for administration by the mouth. Many firms of good repute prepare ovarian extract in the form of tablets, for example. There is good reason, judging by animal experiments, to believe that administered in this way this extract can have no effect. Nevertheless, I am told many doctors often prescribe it, and some state that they get good results. It should be remembered that a great deal of clinical evidence is necessarily inconclusive, but in so far as the doctor makes observations which are carefully controlled, it seems preferable to infer that the beneficial effects recorded are due to the psychological rather than to the physiological effect of the tablets of ovarian extract.

In the matter of these worthless gland preparations there is a very real difficulty. The manufacturing pharmacist, who may suspect the value of the particular extract he makes and advertises, no doubt justifies himself by saying that it is the doctor's business to know whether this extract is useful or not, and if the doctor is pre-

pared to buy it and use it, then his own responsibility ends. That is an entirely tenable position. It neglects, however, the doctor's side of the case. A very large number of doctors have no serious opportunity of studying pharmacology and therapeutics at all. These subjects do not enter into surgery and midwifery, but only into medicine, and here the main part of the time is spent on diagnosis and pathology. Pharmacology and therapeutics form no part at all of the conjoint diploma of the Royal College of Surgeons and the Royal College of Physicians.* Yet this is the diploma held by the majority of practising doctors in this country. Consequently a large number of doctors look to the pharmacist, and especially to the manufacturing pharmacist as a person, who has some knowledge of the progress of the science of therapeutics. This reliance may be generally more subconscious than conscious, but I am convinced it exists, and it throws a considerable responsibility on to the shoulders of the pharmacist, who is anxious to maintain the traditions of his profession and not merely to make money.

There is still another side to this question, for we see many manufacturing pharmacists in England, as well as in America, who are doing their best to persuade doctors that they know all about the pharmacology and therapeutics of their products. More than one American firm goes so far as to issue a periodical journal of medical matter.

From whichever point of view we regard the situation it seems to me that there is a great deal to be said not only for broadening and bringing up to date pharmacognosy and pharmaceutical chemistry, but also for teaching the pharmacist a certain amount of pharmacology. That is, I admit at once, much more debatable ground. The argument against it is that pharmacology is a medical subject, which should only be taught to medical students. This argument, though specious, is a bad one. For, in reply, it can be pointed out that pharmacology is merely a branch of physiology, and that some of the ablest physiologists have never been medical men at all. The present professors of physiology at Cambridge and at University

*I learn, since writing the above, that two years ago Pharmacology was added as a subject to the examination for the Diploma of the Conjoint Board of the Royal College of Physicians and Royal College of Surgeons.

College, London, are neither of them medical men, and it is easy to mention many others like the late Sir William Bayliss and Prof. Langley.

In any case, this Society has instituted a research laboratory in pharmacology with the full approval of the principal medical bodies, and the step from this to teaching some pharmacology to students seems as small as any step can be.

I have drifted some distance from the subject of my paper, but before concluding I would like to trespass still further.

The developments already mentioned would not, if they were carried out, seriously affect the retail pharmacist. From time to time there have been suggestions in *The Pharmaceutical Journal* for the retail pharmacist's future which seem deserving of strong support. It has been suggested that the retail pharmacist should undertake the testing of those things which are tested every day in the laboratory of chemical pathology of a hospital. These include the chemical analysis of blood, urine, and other body fluids, such as stomach contents. Looking at the suggestion from the doctor's point of view, it would be very valuable if in every town of 10,000 inhabitants or more there was one pharmacist who had received a thorough training in this kind of work. At the present time the doctor has no time for doing it himself, and he must either do without the analysis or send samples by post to some institution in London or elsewhere. In practice he does without the analysis where in many cases it would be valuable to have it.

It is obvious that if a doctor could establish connection with a local pharmacist well trained in these methods he would be able to get far more satisfaction than if he sent samples through the post to an unknown person.

The Society would perform an important service if it were to arrange a voluntary course of instruction in these things, to which might well be added instruction in the use of X-ray apparatus.

Such a step would in course of time materially add to the health service in the country and do more than anything else to raise the status of the pharmacist.

NATIONAL PHARMACY WEEK THE SECOND ANNUAL OBSERVANCE

THE WEEK of October 10 to 16 has passed—Pharmacy Week is over, and the reports of its successful observance are pouring in to National Headquarters from every section of the country—the reports being accompanied by photographs of window displays, copies of newspapers carrying full-page Pharmacy Week spreads and editorials, copies of educational literature which was distributed, and other material which bears evidence of the wide interest manifested. Pharmacy Week was a magnificent success, which exceeded the fondest hopes of the members of the Committee for this second annual observance.

The writer wishes to take this opportunity to thank the members of the Executive Committee, composed of the joint committees of the American Pharmaceutical Association and the National Association of Retail Druggists, and the members of the Advisory Committee, composed of the secretaries of the State Pharmaceutical Associations for their loyal support and coöperation in the work of the organization and the campaign of publicity prior to the event.

The National Chairman also wishes to publicly express his deep appreciation for the valuable help and splendid display of coöperation rendered by C. Fred Wright, of Boston, Chairman of the National Association of Retail Druggists' Committee on Pharmacy Week. It was a distinct privilege to work with Chairman Wright.

It would not be possible to overestimate the gratitude which the Committee and the pharmacists of the nation owe to the Journals of Pharmacy. Perhaps no contributing factor was as instrumental in bringing about the success of Pharmacy Week. The writer does not know of one single journal in the entire country which did not put forth every effort in its columns to carry the message of Pharmacy Week to the pharmacists of the nation. This masterful assistance was absolutely indispensable to the success of the movement.

The work of the Executive Committee was made possible through an appropriation of five hundred dollars—given jointly by the American Pharmaceutical Association and the National Association of Retail Druggists, while individual state associations financed the work of organization and observance in their respective states.

Members of the National Wholesale Druggists' Association contributed valuable assistance by attaching 140,000 Pharmacy Week stickers to their invoices. These stickers were procured from Dr. E. L. Newcomb, the secretary of the association, who sent out letters to all of the wholesale houses holding membership in the association, outlining the plan. The stickers called attention to the dates and purpose of Pharmacy Week and asked that each store contribute its bit by making a great Pharmacy Week display. Each jobbing house paid for the stickers it procured from the association.

The deans of the colleges of pharmacy responded nobly to the request of the National Chairman that they informed their students of the purpose of Pharmacy Week and solicit their coöperation, asking them to dress appropriate windows in the stores where they were working.

The firm of Johnson & Johnson, of New Brunswick, N. J., and the Lee-Strauss Company, of Johnstown, Pa., furnished window streamers. Under the date of October 7, Dr. Frederick B. Kilmer, of Johnson & Johnson, writes: "We have sent out about 11,000 of the streamers, our stock is now exhausted and we will have to disappoint a great many." The streamers were sent only to those pharmacists who requested them, which surely indicates the wide-spread interest the event commanded.

The Lee-Strauss Company mailed streamers to all of the stores in Pennsylvania. The Committee wishes to express its thanks to these two firms for their invaluable aid in bringing about the successful culmination of its efforts.

From a source not directly connected with pharmacy came a most splendid display of coöperation. The Naborhood Stores Association and the Eastern Advertising Company and their affiliations displayed Pharmacy Week cards in the street cars throughout the country, wherever their interests penetrated. The force of this publicity can be realized when it is said that in Philadelphia alone 3300 of these cards appeared in the cars.

It would not be possible to overlook the support received from the radio broadcasting stations, newspapers and service clubs (Rotary, Kiwanis, Lions, Optimists, etc.)—It is impossible to say just how many hundreds of thousands or even millions of people were reached with the Pharmacy Week message through the avenues which these above-mentioned coöperators opened to us.

It is not possible at this time to give more than rough estimates when referring to actual figures in connection with the number of window displays, broadcasted addresses, addresses before clubs, etc., which constituted a large part of pharmacists' efforts in placing the Pharmacy Week message before the public. It is, however, safe to say that there were 35,000 individual window displays in the United States—that the number of broadcast addresses ran into three figures, and the number of addresses made before clubs ran well into four figures. There were scores of full-page newspaper spreads and editorials in the daily papers, and as mentioned before, thousands of cards in the street cars.

It is to be regretted that this report must be written at this time, as the writer's daily mail would indicate that a great many interesting reports will be received daily for several weeks, and they will not be incorporated into this story which will be released to all of the pharmaceutical journals in the United States and some of the most prominent foreign journals. However, the story of the observance should reach the pharmaceutical world while it is still news, and enough reports have reached from various sections of the country to give a very good idea of the success and scope of Pharmacy Week.

From San Francisco comes word of the most excellent observance. The Pacific Coast journals had given much publicity to the event, while W. Bruce Philip in his weekly information letters to the members of the Alameda County Pharmaceutical Association and the Retail Druggists' Association of San Francisco, played up Pharmacy Week for many weeks prior to the event. He also distributed by mail to all members a window posted telling of Pharmacy Week, pharmaceutical laws and linking up the pharmacist with Public Health Service. The result is that the window displays were numerous and excellent.

A very unusual thing happened at Berkeley which is just across the Bay from San Francisco. Jesse Scow presented the Pharmacy Week program at the Kiwanis Club; . . . Mr. A. R. Heron, of the firm of Mason-McDuffie Company, a large firm of realtors who have been in business in San Francisco and the Bay Region for thirty-nine years, was impressed by the program, that his firm wrote one of the best Pharmacy Week educational display ads which I have ever read, and published it in the *Berkeley Gazette*. To quote in part: "This is National Pharmacy Week, and it is a fitting occasion for each of us to cast up a list of the services which we have come to

expect of the neighborhood druggist. It is an astounding list . . . "In selecting your home, think of the things the neighborhood druggists can do for you, and buy in a community which support one, if you can." To the writer, this appreciated coöperation is most gratifying, as it is a real indication that the pharmacists' educational message is reaching the public for which it is intended.

The Department of Pharmacy of the University of California mailed out announcement cards, telling of Pharmacy Week, held "open house" at the college all week, and featured special lectures.

In the New England States there was the most widespread observance. Chairman C. Fred Wright, of the National Association of Retail Druggists' Committee, worked diligently and nothing was overlooked in the way of possible activity. Pharmacy Week cards appeared in all of the street cars in New England several weeks prior to the event.

The Boston Association of Retail Druggists issued a splendid "broadside" signed by C. Fred Wright, Chairman. It was entitled "Pharmacy is what makes a drug store a drug store."

In addition to his most attractive Pharmacy Week window, J. G. Godding of Boston, distributed a printed Pharmacy Week message entitled "Campaign of Education." It was a very constructive message.

At Atlanta, Ga., Jacobs' Pharmacy Company had an unusual window display at their main store, featuring interesting pictures taken in the Museum of Old Pharmacy in Nuremberg, Germany; one of which is "Christ as a Pharmacist." There were also old volumes of pharmaceutical books, a bust of Galen, unique drug specimens and apparatus. Sinclair S. Jacobs writes: "At all times there were from four to ten people studying this display."

The *Tribune-Republican* of Meadville, Pa., devoted more than a column to an editorial prepared by P. Henry Utech; a story of the window display in Utech's Pharmacy and of the window display in the J. George Heckman Drug Store. Utech's window especially featured urinalysis and clinical diagnosis along with a very splendid pharmaceutical display, while Heckman's window contained a book, "A new and general system of physics," written by William Smith, M. D., in 1769, which was especially commented upon in the paper.

Prof. Charles O. Lee, Professor of Pharmacy at Purdue University, Lafayette, Ind., worked untiringly and arranged a program

with the cooperation of the students of the School of Pharmacy and the local pharmacists, which was very impressive. On Friday evening of Pharmacy Week an address was radioed under the auspices of the School of Pharmacy, on "Professionalism in Pharmacy." The window displays in the drug stores of Lafayette were very good.

In Harrisburg, Pa., J. G. Noh, secretary of the Pennsylvania Pharmaceutical Association, was very active both before and during Pharmacy Week. He wrote editorials which were published in newspapers throughout the State of Pennsylvania and he also prepared outlines for Pharmacy Week advertisements to be used in newspapers by pharmacists in groups in the various sections of the state. During Pharmacy Week he broadcast an address from a radio station in Harrisburg, and addressed the retail druggists at Wilkes-Barre and at Hazleton at dinner meetings. In a letter received October 16, Secretary Noh writes: "I found that the druggists all through that part of the state are coöperating 100 per cent. in our Pharmacy Week campaign. Every druggist had window displays. I found my editorials in all of their newspapers and in general, I think I can safely say that Pharmacy Week has been an overwhelming success."

At Evansville, Ind., Carl E. Luethge broadcast an address from a local radio station. There was an elaborate program in Evansville, but the report has not as yet reached headquarters.

The pharmacists of Johnstown, Pa., were alive to their opportunities and they put across a very impressive observance. George F. Lee, secretary and general manager of the Lee-Strauss Company, was an able leader, and the scientific-professional display which appeared in their salesroom was one of the most creditable in the country. (See page 676, this issue.) They also made displays for some of the local stores; distributed window streamers by mail to all of the stores in the state, and coöperated every where possible.

Forty-five members of the Cambria-Somerset Retail Druggists' Association, under the able leadership of Secretary Ross M. Davis, ran a very excellent half-page in the *Daily Tribune*, Johnstown, Pa.

Joseph H. Webber, of Humphries and Webber, Roanoke, Va., was appointed state chairman and he worked up a very efficient organization throughout the State of Virginia. There were club addresses, radio talks, and hundreds of fine window displays.

Dayton, Ohio, attempted to emulate its most commendable effort of last year, and although it did not seem possible for them

to improve upon the 1925 observance, it seems that they did. Thirty-five stores ran a full-page, accompanied by an editorial in the *Dayton Daily News*. In his report, Otto Moosbrugger, chairman of the Third Senatorial District of the Ohio State Pharmaceutical Association, which includes Dayton, tells of the week's celebration, with its window displays, and addresses.

In addition to all of the above activities, seventy-five pharmacists assembled at Eaton, Ireble County, Ohio, from the district and surrounding counties, where a splendid chicken dinner was served, country style. Addresses were made by H. S. Noel, of Eli Lilly and Company, Indianapolis, Ind.; G. Barrett Moxley, of Kiefer-Stewart Company, Indianapolis, Ind.; M. N. Ford, of Columbus, Ohio, secretary of the Board of Pharmacy; Charles Ehlers, of Cincinnati, Ohio, a member of the board; and President Kistner and Secretary Wetterstroem of the Ohio State Pharmaceutical Association. A social session concluded the program. Charles Derbyshire, G. L. Hoover and Charles Coon of Eaton had charge of the arrangements.

Dayton certainly deserves much credit for its unusually active coöperation.

In Philadelphia, in addition to the street car publicity cards, there were approximately 1000 window displays. They were much more in evidence in the busiest part of the downtown section than they were last year, and everyone of the stores of the Louis K. Liggett and Media Drug Company chains had imposing displays.

Without doubt the three large windows in the pharmacy of Frederick W. Haussmann were unsurpassed anywhere. In one window he showed Pharmacy of Fifty Years Ago. In another Pharmacy and Nature's Gifts and in the third he connected up the drug store and the sick room.

During the week, Joseph W. Noble of the Executive Committee on Pharmacy Week, and Brua C. Goodhart of the local committee, accompanied by a photographer, visited many of the stores and took pictures of some of the windows, among which were the displays in the drug store of Haussmann's, Media Drug Company, Siegfried's, Michener's, Liggett's, Reese's, Farber's, Zonies', Pickett's, Woodside's, Hoch's, Ricker's, Powers and Reynolds', Cope's, Eppley's, Cliffe's, Weiss's and Hunsberger's.

At the Sesqui-Centennial International Exposition where the American Pharmacy Exhibit covers 600 square feet of floor space

in the Medical Science Section in the Palace of Education and Social Economy, a large banner called attention to the following: "Pharmacy Week October 10-16th—Depicting the part which the pharmacist plays in Public Health Conservation." The banner was installed September 11 and was observed by hundreds of thousands of visitors to the Exposition. The story of the American Pharmacy Exhibit, with interesting illustrations, will be released shortly to the pharmaceutical journals.

The following addresses were broadcast from the five radio stations in Philadelphia:

Monday—Gimbel Brothers Radio Station WIP—4.15 to 4.30 P. M. Address by Dr. Robert J. Ruth, Philadelphia College of Pharmacy and Science; National Chairman.

Wanamaker's Radio Station WOO—7.50 to 8 P. M. Address by Prof. Charles H. LaWall, Dean of the Philadelphia College of Pharmacy and Science.
Pennsylvania Hotel Radio Station WCAU—8.15 to 8.23 P. M. Address by Prof. Ivor Griffith, Philadelphia College of Pharmacy and Science.

Tuesday—Strawbridge and Clothier Radio Station WFI—4 to 4.10 P. M. Address by Prof. J. W. Sturmer, Dean of Science, Philadelphia College of Pharmacy and Science.

Wednesday—Lit Brothers Radio Station WLIT—2.30 to 2.38 P. M. Address by Dr. Robert J. Ruth, Philadelphia College of Pharmacy and Science; National Chairman.

Editorials were prepared for the newspapers by several members of the faculty of the Philadelphia College of Pharmacy and Science.

The following addresses were made during the week before various clubs:

Monday—Chemical Club of Philadelphia at Adelphia Hotel. Speaker, Prof. Ivor Griffith of Philadelphia College of Pharmacy and Science.

Tuesday—Optimists Club of Philadelphia at Penn Athletic Club. Speaker, Dr. Robert J. Ruth, (120 present) including International President of Optimists' Clubs—Oscar Smith of Los Angeles.

Wednesday—Rotary Club of Philadelphia at Bellevue-Stratford Hotel. Speaker, Dr. Charles H. LaWall of Philadelphia College of Pharmacy and Science. (450 present.)

Philadelphia Club of Advertising Women, Arcadia Restaurant. Speaker, Dr. Robert J. Ruth.

Thursday—West Philadelphia Lions Club at Pennsylvania Hotel. Speaker, Admiral Wm. C. Braisted, President of Philadelphia College of Pharmacy and Science.

Friday—Exchange Club of Philadelphia, Bellevue-Stratford Hotel. Speaker, Dean Charles H. LaWall, Philadelphia College of Pharmacy and Science.

In every particular, the Pharmacy Week program in Philadelphia proved successful in the superlative, and the multitudes reached without message was enhanced by the fact that the National Convention of the American Legion was being held in the city during Pharmacy Week.

At New Brunswick, N. J., the home of Johnson & Johnson and of Dr. Frederick B. Kilmer, a member of the Executive Committee of National Pharmacy Week, and to whom Pharmacy Week owes a great debt because of the interest which both Johnson & Johnson and Dr. Kilmer have displayed and the effort which they put forth in practically putting Pharmacy Week across the first year—The *Sunday Times* devoted nearly a full page to Pharmacy Week.

Through the efforts of Dr. H. A. B. Dunning, President of the Maryland Pharmaceutical Association, and Dr. E. F. Kelly, Secretary of the Association and of the American Pharmaceutical Association, the pharmacists of Baltimore and of the State of Maryland observed Pharmacy Week in a fitting manner. Their report has not yet reached headquarters but some of the material used in bulletin form prior to Pharmacy Week showed splendid arrangement and plans.

Missouri stands unbeatable! It would be well for many other states to study the methods as outlined by W. H. Lamont, the Missouri State Chairman of Pharmacy Week, secretary of the Missouri State Pharmaceutical Association, and editor of the *Missouri Drug-gist*. Mr. Lamont worked arduously to put Pharmacy Week across in 1925 and had 372 professionally dressed windows last year. His report has not as yet reached me for the 1926 observance, but when it does, it will be extremely interesting. He has interested the phar-

macists of the entire state, and promised especially, the coöperation of the Kansas City Retail Druggists' Association and the Kansas City College of Pharmacy, at the extreme western end of the state. The Pharmacy Week Club of Missouri was formed.

Q. J. Cloughly, general manager of the St. Louis Wholesale Drug Company, offered a silver loving cup as first prize in the Missouri Pharmacy Week Club contest. The winner to display the cup in his window for thirty days, then to return it to Mr. Cloughly, who will exhibit it in his display room until Pharmacy Week 1927. If the cup is won three times by the same pharmacist, it becomes his property. The judges are Messrs. Pauley, Kreitz and Harris. There were twenty other valuable prizes.

The National Chairman is eagerly awaiting the report of Chairman Lamont, and it will be interesting to know the results of this contest.

In Minnesota, Prof. Gustav Bachman of the University of Minnesota, Minneapolis, Minn., the state chairman, and F. M. McCabe, of St. Paul, the editor and manager of the *North Western Druggist*, were very active and their reports are awaited with interest.

At Minot, N. D., Frank P. Taylor, manager of the Leland Drug Company, spoke before the Rotary Club.

Hal E. Duncan, of Birmingham, Ala., a member of the executive committee, rendered most capable service in the South and he writes: "I hope you feel that the results from National Pharmacy Week this year have been more than expected and I pledge you my support in the future along this line."

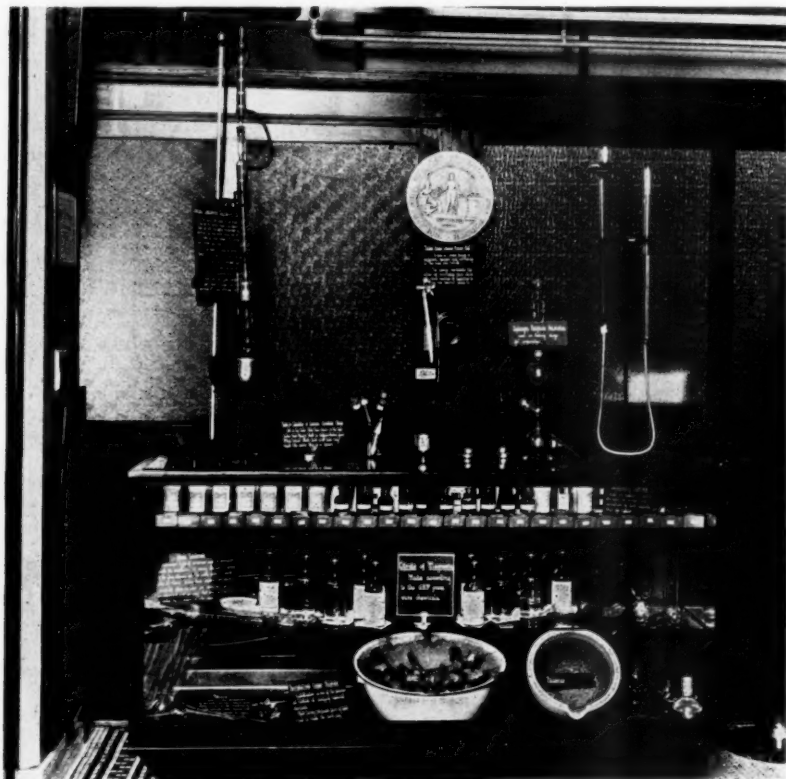
At Cleveland, Ohio, Dean Edward Spease, of Western Reserve University, and Henry Pollock, ex-president of the Ohio State Pharmaceutical Association, had things well in hand for a noteworthy observance. Their reports have not yet reached headquarters.

It is regretted that reports from every section of the United States are not available at this time, to be included in this story of the National Observance, but surely there is sufficient evidence to warrant the conclusion that the second annual observance of National Pharmacy Week was an unqualified success, and to spur us on to renewed activities which will place professional pharmacy upon an unparalleled plane of dignity and prominence. It is only possible to surmise to what success the continued annual observance of National Pharmacy Week will attain.

ROBERT J. RUTH, *National Chairman.*

A PHARMACY WEEK DISPLAY

MR. GEORGE F. LEE, general manager of the Lee-Strauss Company, Johnstown, Pa., furnished the following description of an excellent Pharmacy Week display exhibited by his company during the recent Pharmacy Week. It is printed for the purpose of stim-



PHARMACY WEEK DISPLAY—Lee-Strauss Company, Johnstown, Pa.

ulating others to similar effort when next year rolls around and present a like opportunity for furthering the cause of Pharmacy. The numbered boxes on the top shelf on the case shown on photograph are specimens of crude drugs. The following drugs were shown:

Sabadilla Seed
Cascara Bark
Cinchona Chips
Dog Grass
Foenugreek
Gentian
Juniper Berries
Kola Nuts
Stillingia
Aloes, Curacao
Lobelia Leaves and Tops
Aconite Root
Belladonna Leaves

Benzoin
White Hellebore
Black Cohosh
Culver's Root
Catnip Leaves
Soap Bark
Colchicum Root
Damiana
Mandrake Root
Musk Root
Pichi
Senna Alexandria, Whole

In the background on the same shelf were 8-ounce stoppered bottles of chemicals and liquids of the following:

CHEMICALS

Bismuth Subgallate
Sodium Citrate, Crystals
Milk Sugar
Zinc Stearate
Sodium Salicylate
Sodium Phosphate, Granular
Potassium Iodide
Iron Sulphate
Hydrous Wool Fat.

The large cylinder on top of the case tied with ribbon contained five immiscible substances as follows:

LIQUIDS

Alkaline Antiseptic Solution
Olive Oil
Liniment of Soft Soap
Aromatic Elixir
Aromatic Fluid Extract of Cascara
Sol. Potassium
Arsenite

LIQUIDS

Mucilage of Tragacanth
Compound Spirit of Orange
Compound Tincture of Lavender
Antiseptic Solution
Methyl Salicylate

The test tubes on top of case illustrate tests for identity of:

- 1—Colored Grain Alcohol
- 2—White Liquid Petrolatum
- 3—Aqueous Sol. Methylene Blue
- 4—Chloroform
- 5—Potassium Dichromate
- 6—Mercury

In back of these was placed a sign reading as follows:

Epsom Salt
Acid Salicylic
Cream of Tartar
Sodium Phosphate

TEST FOR IDENTIFY OF COMMON HOUSEHOLD DRUGS

"It is by tests like these shown in the test tubes that Epsom Salt is differentiated from White Vitriol—They both look and taste much the same. One is Poison."

We also show on top of the case a Nitrometer with an appropriate sign stating it is used in testing the strength of Sweet Spirit of Nitre.

We also show a Hydrogen Sulphide Generator used for testing chemicals for impurities.

On top of the case at the extreme left we set up a complete Soxhlet Continuous Extraction Apparatus. A printed sign on this apparatus read as follows:

"The liquid (95% Alcohol) in the flask is heated to the boiling point, when it is vaporized and rises up into the reflux condenser; and upon striking the cold walls which are chilled by a current of cold water—it condenses and drops into the paper thimble.

"In the paper thimble is some 'Gum' Benzoin, which is partly soluble in alcohol. When the condensed alcohol reaches $\frac{1}{8}$ inch from the top of the thimble it is automatically syphoned back into the flask beneath.

"Every four minutes the thimble becomes full and empties itself."

The case also contained Glass Mortars, Spritz or Wash Bottles, Evaporating Dishes.

Worm Condenser, Separatory Funnels and Retort. These were carded with signs as follows:

"WORM CONDENSER

"A common type of condenser used in connection with the distillation of many liquids. A sample of the glass blowers art,

the entire operation being done by hand. A very hard specially annealed (tempered) glass is used in condensers, for when in use—one end is very hot and the other end is cooled by a stream of cold water."

"SEPARATORY FUNNEL

"Used in assaying (testing strength) of drugs, and separation of two liquids that do not mix."

"RETORT

"Used in the distillation of delicate, complex plant principles; and in the making of delicate extracts like Azurea and Djer-Kiss that would be injured by coming in contact with a rubber stopper or rubber connection."

"The large pan in the center of the case is a beautiful Crystallization of Copper Sulphate. This was carded as follows:

"Recrystallized Copper Sulphate

"Crystallization is one of the commonest methods of purifying medicinal chemicals.

"Rock Candy, (the purest form of table sugar) is made the same way."

The large white mortar contains Crystals of Potassium Dichromate.

"We also show a few bottles of Solution of Citrate of Magnesia, made according to the U. S. P. from pure chemicals.

"It is probably not necessary to call your attention to the emblem of the P. C. P. & S. hanging over the case. Under this we placed a sign reading as follows":

"NOSSE HAEC OMNIA SALUS EST"

"To know all these things is sufficient (safety and well-being to the body and mind).

"The design represents the Altar of Knowledge from which the hand maiden of medicine is handing the healing plant to America."

SOCIETY FOR HISTORY OF PHARMACY**By Otto Raubenheimer, Ph. M., Brooklyn, N. Y.**

AT THE SIXTIETH ANNUAL CONVENTION of the American Pharmaceutical Association, held in Denver, Colo., in August, 1912, the writer in his address as chairman of the Section on Historical Pharmacy, began as follows:

"There is much more to pharmacy than the dispensing of drugs, the preparation of galenicals, the compounding of prescriptions and incidentally the sale of soda water, cigars, candy and postage stamps! There is a fascinating field of study which shows the pharmacist the origin and the development of his beloved profession, namely, the study of the history of pharmacy. I might even venture the bold statement, that in order to truly love his profession, the pharmacist must necessarily be acquainted with its history."

Although fourteen years have elapsed, the writer still holds the very same opinion. Germany, where the practice of pharmacy has reached such a high state of perfection, has produced three great pharmaceutical historians, namely, Johann Berendes of Goslar, Hermann Peters of Nuremberg and later Hannover, and Hermann Schelenz of Kassel. Although these three "stars" have departed, younger men are following in their footsteps. In our own commercialized country the interest in History of Pharmacy seems to deepen, as can be observed from the numerous historical papers published in the *AMERICAN JOURNAL OF PHARMACY*. We might even mention here that there is now in print a book on History of Pharmacy by an authority on this subject.

For some time a movement has been afoot in Germany to form a Society for History of Pharmacy. The time was ripe when the writer during his European trip this summer talked the matter over with a number of interested men. Credit belongs to Dr. Ludwig Winkler, proprietor of the historic Lauben-Apotheke and Docent for History of Pharmacy at the University of Innsbruck, Tyrol, for sending out a call for such a gathering. Consequently, on August 17th and 18th, quite a number of pharmaceutical historians laid the foundation stone for the Society of History of Pharmacy. It was the good fortune of the writer to be present at that meeting and to become a charter member, although it necessitated a special trip from Lucerne,

Switzerland, to Innsbruck, Tyrol. The society was organized in the apothecary shop of Dr. Winkler, which dates back to 1534 and which has been in the possession of the Winkler family since 1578. I must not forget to mention the "Museum" or "Historical Pharmacy," situated on the floor above the Apotheke. This will be described in a future paper.

Many letters were received expressing the need of such a society, for instance, from the following authorities: Dr. J. A. Höfliger, Basel; Dr. H. Heger, Vienna; Dr. H. Heinrici, Halle; Dr. Jo. Mayer, Wiesbaden; Dr. J. H. Merck, Darmstadt; Dr. P. Siedler, Berlin; Dr. K. Siegfried, Zofingen; Prof. Dr. H. Thoms, Berlin; Prof. Dr. A. Tschirch, Bern; Prof. O. Zeckert, Vienna, and Prof. Dr. H. Zörnig, Basel.

At this meeting two resolutions were adopted as follows:

1. History of Pharmacy should be taught at the principal Colleges of Pharmacy as a separate subject.
2. At the Annual Convention of German Naturalists, papers and reports pertaining to History of Pharmacy should be presented before the Section on Pharmacy, Pharmaceutical Chemistry and Pharmacognosy.

The following officers were elected:

Dr. Ludwig Winkler, Innsbruck, president;
H. Gelder, Berlin, secretary;
G. Urdang, Berlin, assistant secretary;
Fritz Ferchl, Mittenwald, treasurer;
N. Zimmerman, Illenan, historian and editor.

The officers as well as the referees are pharmacists known internationally for their interest and work in pharmaceutical history.

The following referees were appointed for different countries:

Switzerland: Dr. J. A. Höfliger, Basel.
Jugoslavia: Dr. A. Krajanski, Varazdin.
Holland: Dr. J. J. Hofman, Hague.
United States: Prof. Otto Raubenheimer, Brooklyn, N. Y.

As the society increases, other referees will be appointed.

It is highly desirable to obtain representative membership in the United States. The annual dues are merely nominal, namely, 5 Mk.—\$1.25, which Prof. Otto Raubenheimer, 1341 Fulton Street, Brooklyn, N. Y., has been authorized to collect and turn over to the treasurer. Who wants to join?

SCIENTIFIC AND TECHNICAL ABSTRACTS

AN UNUSUAL FORM OF FOOD POISONING.—“Health,” the monthly bulletin of the New Hampshire State Board of Health, reports the following:

A woman attending a dinner party ate freely of stuffed green olives, being the only one in the company to do this. She was soon after taken violently ill, with vomiting and purging and other evidence of very severe gastro-intestinal irritation, from which condition she continued to suffer for upwards of a month, but she has not yet fully recovered. She was satisfied that this illness was due to mercury contained in the olives. Globules of mercury were said to have been found in the vomitus.

As a result of this attack, the balance of the contents of a bowl of olives at the store was submitted to analysis. A casual examination readily revealed the presence of an appreciable amount of metallic mercury, this appearing mainly as a finely divided coating or film on the surface of the olives. No examination for the presence of dissolved mercury was made.

The case presents peculiar features. The dealer claims that he sells a fifty-gallon barrel of this product each month and that the glass dispensing bowls, which are kept securely covered and the contents of which are sold out several times each week, are washed out regularly every Monday. There was no history of any mercury spillage at the store. Tests, later, of various officially collected specimens failed to show any trace of mercury or of its salts.

H. L.

MORE ABOUT “BOOTLEG COSMETICS”—Attention was called recently to the work of the New Hampshire State Board of Health in regard to the sale of cosmetics, especially the so-called “Hair Re-

storatives" containing poisonous substances. A recent edition of the board's monthly publication "Health" gives further data on the subject. Many analyses have been made by the Mr. Charles D. Howard, chemist of the board. The following are descriptions of several flagrant instances that have been detected by Mr. Howard.

The latest of these discoveries to come to local notice, sells at one dollar for a slender two ounces—the equivalent of three to four times the price of the more plebeian varieties of the same character. The claim that it restores the natural color to gray hair through feeding and stimulating the roots and color glands is familiar stuff, but actually the color change is due to the dyeing action of lead and sulphur. Notwithstanding the presence of this poison, the preparation is conspicuously labeled "harmless," while in its newspaper advertising the maker ventures so far as to even fix its degree of "harmlessness" by placing it in this respect in the category with rainwater. Common sense and ordinary caution should instead dictate the use of a poison label.

Another so-called "absolutely harmless" preparation of this character is a "scientific treatment to prevent the hair from growing gray and for gradually restoring gray hair to its natural color," based, it should be realized, upon the sopping of a solution of sugar of lead upon the scalp.

There is a rapidly growing sentiment for the general adoption of legislation to curb the glaring evils attendant upon the distribution of certain forms of cosmetics. It is not enough, however, in the case of the lead preparation, to allow these to go with a poison label and the purging of the present dishonest claims. There is nothing in our knowledge of the scientific aspects of the subject today which does not amply sustain Dr. H. W. Wiley in his dictum of a decade ago that "lead acetate cannot be considered a legitimate ingredient of a product to be rubbed into the scalp." Just as the law already penalizes the sale of toilet preparations containing wood alcohol, the use of which is unnecessary, so also it should place a ban upon the lead variety of hair dye, to the end that those of harmless character be substituted and this menace to the public health eliminated.

H. L.

"CANNED HEAT" AS AN ILLICIT SOURCE OF ALCOHOL—This subject has been recently investigated by the New Hampshire State Board of Health, the analyses being made by the chemist, Mr. How-

ard. Denatured alcohol has long been used as a source of heat on the small scale, such as heating chafing dishes. About 1909, a form was introduced in which a solidifying material, generally soap, was added and the material put up in small cans. At first some mystery was made of the matter, but the nature of the material used is now known. Later, soap was substituted by nitrocellulose giving greater solidity when heated.

Several brands that find wide sale were examined and certain forms of denatured alcohol were found. From all three samples there was separable by means of a filter press nearly three ounces of fluid from a three-ounce can, susceptible to dilution to any degree of alcoholic strength. It has become common knowledge that from these brands alcoholic beverages of any desired strength can be prepared with ease and without any apparatus other than a handkerchief and the fingers. Such cannot be said of paint or shellac, to which these goods have been erroneously likened.

It is true that the alcohol can be separated from shellac, but this can be done only through the addition of a considerable volume of water, the separated fluid is far below the original alcoholic strength, and cloudy, resinous and unattractive.

The manufacturers claim that these articles are not denatured alcohol but "finished products," analogous to shellac. The other articles contain substantial amounts of other substances which serve to distinguish these from the alcohol, and which is present only as a secondary ingredient. In the case of the fuels, alcohol is the essential ingredient. There is no truth in the argument that a similar requirement as to labeling might consistently be exacted of a great variety of alcoholic household or toilet preparations, because these must not contain methanol and, therefore, are not "denatured alcohol" within the meaning of the statute.

H. L.

MUSKONE PREPARED SYNTHETICALLY—One of the greatest scientific achievements of the generation in the field of synthetic organic chemistry and more specifically in that of perfume chemistry was completed when the firm of M. Naef & Company, Geneva, Switzerland, announced the success of their attempt to manufacture synthetically Muskone, the perfuming principle of natural musk, which is now being produced in sufficient quantities for sale. The completion of this synthesis marks the successful conclusion of a series

of researches extending over a number of years and costing in the aggregate several hundred thousand dollars. To anyone familiar with the history of organic chemistry, it is strikingly reminiscent of the famous indigo synthesis.

Since the earliest days of synthetic chemistry, the problem of the perfuming principle of natural musk has been a fascinating one for chemists, not only because of the difficulties involved but because of the financial rewards awaiting their successful solution, owing to the scarcity and high cost of natural musk. All attempts to isolate the perfuming principle in any reasonable degree of purity were unsuccessful. The earlier investigators isolated something which they called Muskone and which they described as a heavy, oily liquid but the appearance and character of this isolation product rendered it highly probable that it represented a mixture rather than a pure substance and the attempts to further purify and crystallize it met with no success. It is, however, not surprising to chemists that when Muskone was actually produced in the laboratory it turned out to be a pure white crystalline product rather than an oily liquid.

Owing to the cost of natural musk and the very small amount of perfuming principle present in it, a little more than one per cent., it was prohibitively expensive to isolate any large quantity of it as a basis for investigation. Fortunately, however, it was found that the perfuming principle of Civet, to which was given the name Civettone, was obtainable in larger quantities at a lower cost and appeared to be sufficiently close in chemical constitution to Muskone to make it a useful starting point for scientific research.

Working on this basis, M. Naef & Company not only conducted research work in their own laboratories but financed investigations of different aspects of the problem in several of the prominent European universities. It very soon became evident that the perfuming principles both of Musk and Civet were bodies of a cyclic constitution containing at least one Ketone group and a large but indefinite number of carbon atoms, certainly not less than nine.

The key to the solution of the problem was found when Dr. Philip Chuit of M. Naef & Company prepared cyclic Ketones containing from 9 to 18 carbon atoms in a ring by the pyrogenic decomposition of the thorium salts of the corresponding polymethylene-dicarboxylic acids.

An examination of the Ketones thus prepared showed that those containing 10 to 12 carbons in a ring had a camphoraceous odor

while those having 14 to 18 carbon rings had an odor similar to that of Musk. Of these the Ketones with 14 and 15 carbon rings had an odor almost identical with Muskone while higher members of the series corresponded more closely with the odor of Civet. Ketone C-17 was found to be exactly identical with Dihydrocivettone obtained by the hydrogenation of Civettone.

Ketone C-15, chemically known as Cyclopentadecanon, is identical with Muskone. It is the chemically pure perfuming principle of natural Musk which exists even in the finest grade of Musk Tonquin Grain only in the proportion of 14 parts to 1000.

Outlined in this way, the synthesis of Muskone which occupied some of the best chemists of Europe for a number of years, looks like a simple proposition but even today with an exact knowledge as to its constitution and methods of preparation its manufacture on a commercial scale offers tremendous technical difficulties and the total production must still be measured in ounces rather than in pounds.

Muskone itself apparently has little odor and it is only when it is diluted in the form of a tincture, 1 part to 1000, that its true Musk character becomes apparent. Its relation to natural Musk is much like that of Vanillin to vanilla beans with the difference that the vanilla bean does contain measurable, though small, proportions of other valuable ingredients whereas investigation shows that natural Musk contains no perfuming ingredients of value except the Muskone which has now been duplicated synthetically.

NEWS ITEMS AND PERSONAL NOTES

OBITUARY—JEANNOT HOSTMANN.—Jeannot Hostmann, associate chemistry professor and director of the chemical laboratory at the New York College of Pharmacy, Columbia University, and secretary of the New Jersey Pharmaceutical Association, died at his home in Hoboken, N. J., on November 11. Born in Jersey City, N. J., December 27, 1876, Professor Hostmann graduated from the grammar and high schools of Jersey City and entered pharmacy as an apprentice to the late Ferdinand A. Bongartz. He subsequently enrolled as a student in the New York College of Pharmacy, graduating in the class of 1896. He practiced until 1907, when he sold his pharmacy at Hoboken and

joined the teaching staff of his Alma Mater and became a special chemistry student at Columbia University.

One time chemist to the City of Hoboken and its Board of Health, Professor Hostmann was chemist to the New Jersey Board of Pharmacy at the time of his death. He was co-author of Sadtler and Coblentz's "Medical and Pharmaceutical Chemistry" and Hostmann and McAdams' "Laboratory Manual of Analytical Chemistry." He served the alumni association of the college as its president and editor of its journal. He had been secretary of the New Jersey Pharmaceutical Association since 1916.

Aside from the New Jersey society he held active membership in the American Pharmaceutical Association, New York Branch of the A. Ph. A., American Chemical Society, New York State Pharmaceutical Association, Deutscher Apotheker Verein, American Metric Association, Alumni Association of the New York College of Pharmacy and the Chemists Club. He was an honorary member of the Maryland Pharmaceutical Association, North Hudson Pharmaceutical Association, Jersey City Retail Druggists Association and Hudson County, N. J., Pharmaceutical Association.

Professor Hostmann is remembered by his co-workers as a forceful and indefatigable worker in organization ranks. He and his good wife rarely missed the annual meetings of the American Pharmaceutical Association, in whose service Professor Hostmann had labored constructively, particularly in the recent reorganization of that body. The Journal extends its sincerest sympathy to his widow, Edna Hostmann.

OBITUARY—CURTIS G. LLOYD.—Curtis G. Lloyd, brother of Professor John Uri Lloyd and the late N. Ashley Lloyd, and widely known as a mycologist, died in Cincinnati, Ohio, on November 11. He was born at Florence, Ky., in 1859. and from early childhood had devoted all of his spare time to botanical studies, making a special study of the botany of plants, yielding medicines, his accomplishments in this field being seen in the publication, with his brother John Uri Lloyd, in 1884, of "Drugs and Medicines of North America." He also founded and endowed the Lloyd Library in Cincinnati, which now contains about 50,000 volumes on botany and pharmacy. He instituted the Lloyd Museum, said to contain the largest collection of dried fungi ever brought together. He was noted authority on the classification of fungi, and the author of numerous volumes in the

highly specialized field of mycology. He was for forty years a member of the firm of Lloyd Brothers, manufacturing pharmacists, of Cincinnati.

MELLON INSTITUTE ESTABLISHES ANALYTICAL DEPARTMENT—

Dr. Edward R. Weidlein, director, Mellon Institute of Industrial Research, University of Pittsburgh, has announced the establishment of an institutional department of analytical chemistry, which will be supervised by Dr. George D. Beal, formerly professor of analytical and food chemistry in the University of Illinois and now assistant director in charge of the institute's fellowships in the field of pharmaceutical chemistry.

Dr. William W. Mills has been selected as analyst in the new department. In this positional capacity, Dr. Mills will aid institutional industrial fellows by making analyses and tests incidental to fellowship researches, and will see that the institute's purchases of chemical supplies conform to specifications. He will also have the opportunity to carry on research in analytical chemistry. Dr. Mills, who has been in the employ of the Mellon Institute since 1925, was graduated at Franklin College in 1914 and subsequently pursued advanced study at the Ohio State University where he was awarded the degree of master of science in 1921 and the degree of doctor of philosophy four years later. While at the Ohio State University, Dr. Mills served as assistant to Dr. C. W. Foulk, professor of analytical chemistry. During the period 1914-1919, Dr. Mills was a chemist in the laboratory of the Pittsburgh Crucible Steel Company, Midland, Pa.

ACIDOPHILUS UP-TO-DATE.—*Acidophilus* therapy is now attracting more attention and is being practiced more widely, apparently, than ever before. This is doubtless due, in part, to the fact that a means is now provided by which mass dosage of *acidophilus bacilli* may be continued from day to day without palling on the patient, and by which the organisms are surely conveyed to the large intestine.

Clinically, the intestinal flora is always a matter for consideration and frequently it forms a large part of the physician's concern. Here he will frequently find the underlying cause of many disturbances of health, varying from slight malaise to serious illness.

The latest development in *acidophilus* medication is the *Acidophilus Block*, as developed in the Mulford Laboratories and now sup-

plied by them. These Mulford Acidophilus Blocks have the appearance and taste of high grade chocolate confections, but instead of the usual cream center, there is a small piece of agar which contains a massive dose of acidophilus bacilli. In fact, each block contains as many live organisms as a pint of good acidophilus milk.

Among the most important advantages of Mulford Acidophilus Blocks may be mentioned that they are effective, economical, easy to carry and very palatable, hence easily administered, even to children.

Druggists particularly appreciate the fact that this form of acidophilus product lends itself so admirably to merchandising, because it can be so easily and cleanly handled.

TSCHIRCH FESTSCHRIFT.—During the celebration of the seventieth birthday of Prof. Dr. A. Tschirch, Director of the Pharmaceutical Institute at the University of Berne, Switzerland, he was presented with a Festschrift, a handsome lexicon volume of 447 pages, containing fifty-six scientific papers on researches pertaining to botany, pharmacognosy, pharmacy, chemistry and history by fifty-five scientists from thirteen different countries.

Prof. Otto Raubenheimer, of Brooklyn, who is responsible for the 115 subscriptions to the volume, from the United States, received the following Vote of Thanks from Prof. Tschirch, which we take pleasure in publishing:

"My hearty thanks to all my Colleagues in the United States, who by their generous subscriptions helped to bring about the publication of The Festschrift, containing researches by 55 scientists scattered throughout 13 different countries.

"I sincerely regret that my health does not permit me to shake hands individually with each subscriber in the United States. However, I am, indeed, deeply impressed with the sympathy shown by the American Colleagues.

“(Signed) PROF. A. TSCHIRCH,

“Dr. phil. med., ing-et-rer. nat. hon. c.”

It is perhaps needless to mention that the Philadelphia College of Pharmacy and Science was among the subscribers, in fact that Philadelphia was represented by eleven subscriptions and the State of Pennsylvania by fifteen and the entire United States by 115 subscriptions, not a bad showing for “commercialized pharmacy.”

BOOK REVIEWS

CHEMISTRY IN THE WORLD'S WORK, by Harrison E. Howe, Editor, Industrial and Engineering Chemistry, Technologic Series, American Chemical Society Monographs. D. Van Nostrand Company, New York. 244 pages with index.

The saturation point of the intelligent reading public as regards popular expositions and interpretations of chemistry will not be reached for years, in all likelihood. The reading public is science hungry, it would seem, and every book which adds to the list of works available along this line is very welcome. This welcome is shared by the teachers of chemistry or other science, by the students in colleges and by the reading public at large.

The author of this latest edition to the list of popular science books is well qualified for his task, for the editorial and literary work which he has been doing for years has brought him into contact with all phases of industrial applications of chemistry.

The chapter heads of the book are illuminating as showing not only its scope but also the philosophic attitude of its author which adds very much to the enjoyment of the work. They are as follows:

- | | |
|--|---|
| 1. Solitude. | 9. Permanency of Possessions. |
| 2. Mental Isolation. | 10. Health and Sanitation. |
| 3. Allies of the Sun. | 11. Power. |
| 4. Food and Famine. | 12. Abolition of Drudgery. |
| 5. Contributions of Chemistry to Cloth and Clothing. | 13. Chemistry in National Defense. |
| 6. Decoration—Escape and Monotony. | 14. Chemistry, a Tool. |
| 7. Metals, The Master. | 15. Analysis and Synthesis. |
| 8. Materials of Construction. | 16. The Trend and Purpose of Modern Research. |

It will be seen that instead of the chapters being on specialized subjects they give one a broad viewpoint which is frequently overlooked in works of this kind. For this we owe the author many thanks, for the book is readable, interesting and informative.

A few obvious errors and misprints occur which will probably be corrected in the next edition. One presupposes a second edition to a book of this sort and the book will be an acceptable edition to any library, private or public, general or technical.

CHARLES H. LAWALL.

The German publisher Theodor Steinkopff in Dresden-Blasewitz, well-known for his excellent books on Pharmacy, Chemistry, Technology and other sciences, submitted the following two books for review:

KOLLOIDCHEMIE. Von Dr. Raph. Ed. Liesegang. 2 Auflage. Octavo. 176 pp. Mk. 8.

This is Vol. VI of the Natural Science Series of The Scientific Researches edited by the well-known author and published by Theodor Steinkopff of *Pharmazeutische Zentralhalle* fame.

Among the twenty-four chapters, the referee begs to point out the following: I. Synthesis; III. Optics; IV. Viscosity; V. Plasticity; VI. Capillarity; VII. Adsorption; X. Sedimentation; XII. Brownian Movement; XIV. Peptisation; XVII. Emulsions; XXII. Dialysis; XXIV. Classic Chemistry. Dr. Liesegang deserves credit for having thrown much light upon this dark subject of Colloidal Chemistry, although he has "not been able to produce an entirely clear wine," as he so aptly expressed himself in the Introduction! An Author's Index of nine pages and a subject index of five pages are proof of the subjects treated in this excellent monograph.

OTTO RAUBENHEIMER, Ph. M.

FORTSCHRITTE DER KOLLOIDCHEMIE. Von Prof. Dr. Herbert Freundlich. Octavo. 109 pp. 20 Tabellen und 47 Abbildungen. Mk. 5.50.

The author is a member of The Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry and is well-known through his master works "Kolloidchemie und Biologie," "Gundzüge der Kolloidlehre" and "Kappillarchemie."

In the little book before us Prof. Freundlich reports the progress, in fact the immense strides, which colloidal chemistry has made within recent years. It will undoubtedly interest many to learn that the present text is the outcome of lectures which the author delivered in the United States during the summer of 1925. Let us hope that this youngest child of mother chemistry will continue to develop!

OTTO RAUBENHEIMER, Ph. M.

The publisher Alfred A. Knopf, New York City, submitted the two following books for review:

EDISON, THE MAN AND HIS WORK. By George S. Bryan. Octavo, 350 pp. Cloth, \$3.50.

Many books have been published about Edison, but a goodly part of them are more or less inaccessible to the ordinary reader and a surprisingly large amount of them are superficial, inaccurate or misleading. Therefore the reason of this book!

The author George S. Bryan, a graduate of Amherst in 1900, a member of the staff of several encyclopedias and a literary man of quite some reputation, has herewith produced, within a moderate compass, a reliable up-to-date story about the great inventor, written in a clear and readable manner.

Some of the sixteen chapter titles are: The Youth Experimenter; The Telegrapher Turns Inventor; Edison and the Telegraph and the Telephone; Organizing the Echoes; A New Light Shines; The Edison System Introduced.

Among the many excellent illustrations, I beg to point out the following: Edison; Edison's House at Menlo Park, N. J.; A Prima-donna Singing into the Tin-foil Phonograph; Interior of the Laboratory at Menlo; The Brother of Prometheus.

A complete index concludes this excellent biography, which we can highly recommend.

ALCOHOL AND LONGEVITY. By Raymond Pearl, Director of the Institute of Biological Research, Johns Hopkins University. Octavo, 273 pp. Cloth, \$3.50.

This study before us of the relation of alcohol on longevity is a direct outgrowth of the author's study in 1914 of the racial influence of alcohol upon the domestic fowl. Everyone said that alcohol shortens human life, but alcoholized fowls lived longer than those which got nothing but plain food and water. The torturing curiosity engendered by this apparent discrepancy in the behavior of two forms of life, in some other respects biologically quite similar to each other, only now finds relief as this book is published.

From Chapter IX, Summary and Conclusions, the following is abstracted:

1. In a fairly large and homogeneous sample of the working class population of Baltimore the moderate drinking of alcoholic beverages did *not* shorten life. Moderate steady drinkers exhibited somewhat *lower rates of mortality* and greater expectation of life than did abstainers.

2. Those persons in this experience who were heavy drinkers of alcoholic beverage exhibited considerably increased rate of mortality and diminished longevity, as compared with abstainers or moderate drinkers.

The book contains numerous illustrative charts, and excellent bibliography and a very complete index.

It is a book which should be in the library of any educated American, pharmacists included!

OTTO RAUBENHEIMER, Ph. M.

A NEW USE FOR THALLIUM COMPOUNDS.—The apartment house dweller who finds himself dispossessed of his costly cubicular domicile by persistent clans of ants should take heart. A poisonous potion of particular deadliness has been concocted at the United State Department of Agriculture which spells the end of even the little red kind that feed on arsenic syrup without turning an antenna.

Compounds of thallium, one of the rarer elements, are used in the new "dope" which has been found to be a vicious deathdealer to several resistant species of the minute pests, according to C. H. Popenoe, expert in the United States Bureau of Entomology. Though thallium is too expensive to be used on a large scale as an insecticide its potential value as an efficient bug killer in apartments and houses is of considerable importance. Householders will await with interest the results of further tests on other insects that are being carried out in the Bureau of Entomology.—*Science Service*.

CORRESPONDENCE

H. V. ARNY, Ph. D.
Professor of Chemistry
Columbia University, College of Pharmacy
115 West 68th Street

New York, December 9th, 1926.

Editor, AMERICAN JOURNAL OF PHARMACY,
Philadelphia, Pa.

Dear Sir:

My attention has been called to an error in my little article on "Seventy-five Years of Pharmaceutical Research" which appeared on page 600 of your November issue; an error or oversight on my part which I deeply regret since it affects the man whom I fondly regard as the foremost exponent of pharmaceutical research in America, our honored friend, Dr. Frederick B. Power graduate of the Philadelphia College of Pharmacy class of 1874.

In my article I characterized my beloved teacher Professor Maisch as "the only American winner of the Hanbury medal." This great honor also came to Dr. Power in 1913 and in this connection it is interesting to note that Dr. Power was the first and only American who up to now has been awarded the Fluckiger medal, that distinction coming to him in 1922. In addition Dr. Power has been the Ebert Prize-winner on three occasions: 1877, 1903 and 1907. Is it therefore surprising that Dr. Power's friends delight to acclaim him as our greatest worker along the line of pharmaceutical research?

There is also a typographical error for which I am responsible that I would like to correct. The name "Hamburg" in the second paragraph on page 601 should read "Hanbury"; this distinguished pharmacist in 1851, as a young man of twenty-six years, having published a paper on Menispermum in the *Pharmaceutical Journal*.

Respectfully yours,

H. V. ARNY.

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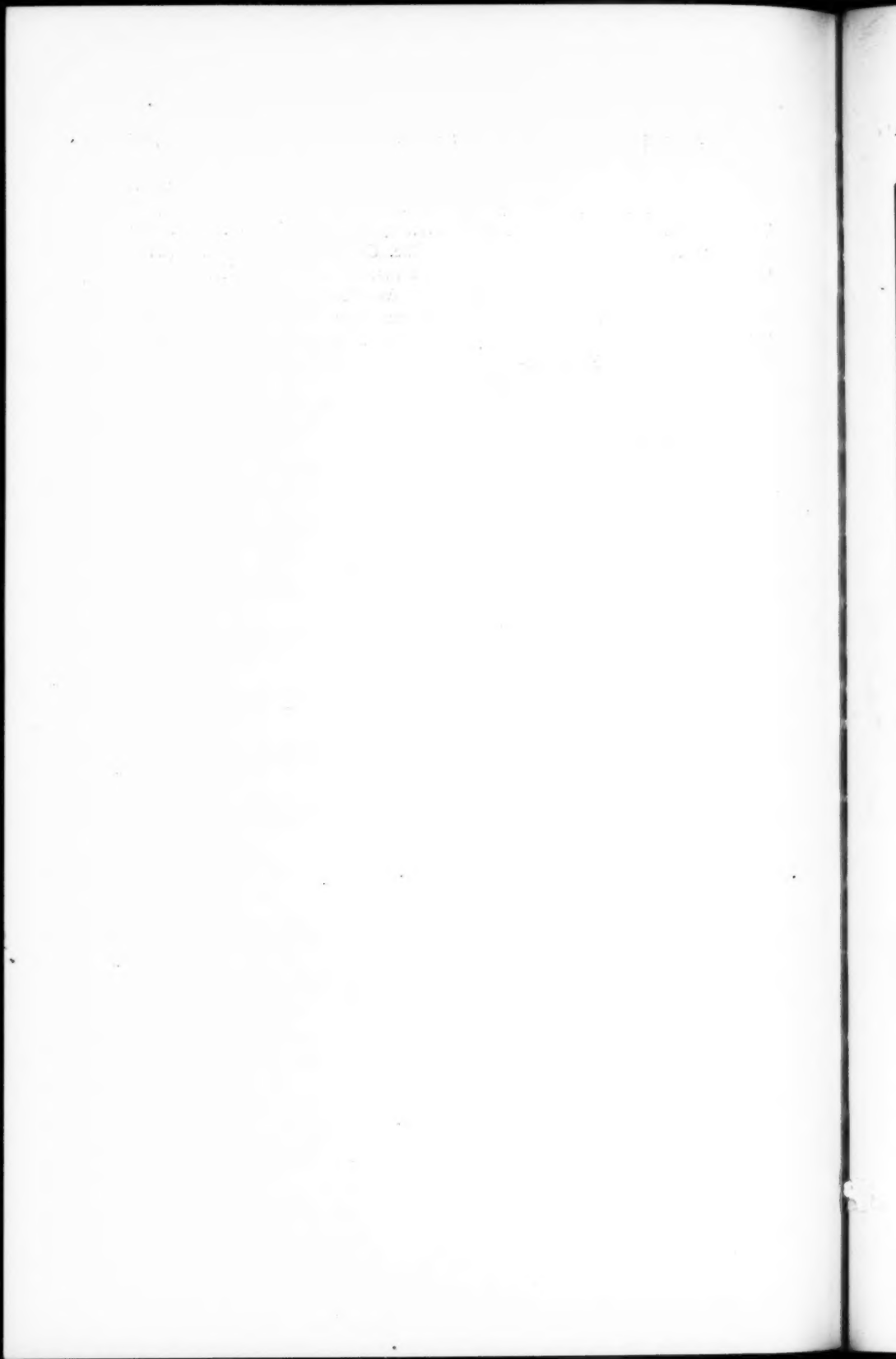
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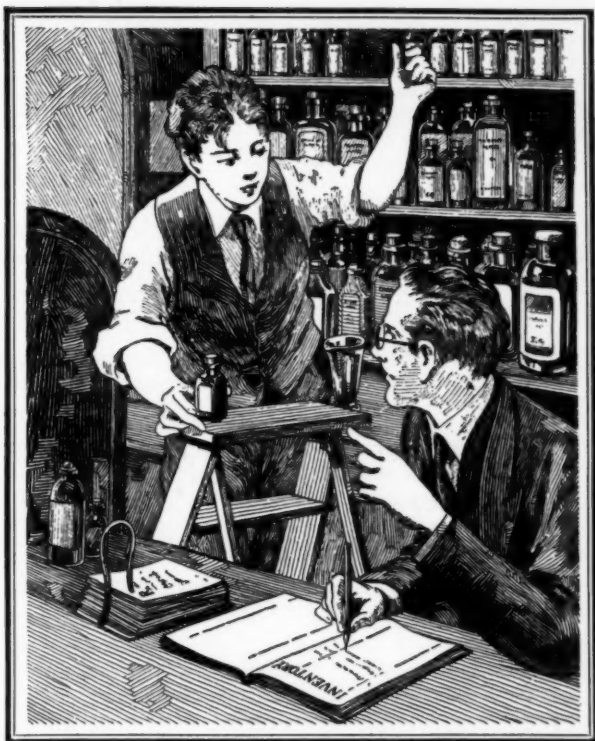
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